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3.2.1 Institution has created an ecosystem for innovations including incubation Centre and other initiatives for creation and transfer of knowledge

ACADEMIC YEAR 2023 - 2024

3.2.1	**Institution has created an ecosystem for innovations including incubation Centre and other initiatives for creation and transfer of knowledge 2023 - 2024**
1	NPTEL Course
2	Patent Publication
3	Research Workshop and Seminars
4	Research Paper Publications
5	Project Expo

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ACADEMIC YEAR 2023 – 2024

NPTEL Course	
1	Advanced In Welding And Joining Technologies
2	Research Methodology
3	Cloud Computing
4	Computer Networks and Internet Protocol
5	Data base Management System
TITLE OF THE PATENT	
1	Semi Automatic Exotic Plants Cleaning Machine
2	Procedure For Reduce Residual Stress In Low Carbon Steel Joints By Rotating Arc Welding Method
3	Voice-Activated Home energy Management using Machine Learning
4	Underground Water Pollution Detection Device
5	Device To Perform Analysis Of Polymer Concrete
6	An E-Vehicle Wireless Charging System
RESEARCH WORKSHOPS AND SEMINARS	
1	Workshop on Exploring Research Methodology in the Potential of IOT
2	Seminar on Enforcement of Intellectual Property Rights
3	Seminar On High-Performance Concrete For Sustainable Buildings
4	Seminar On Recent Trends In Green Power Technology
5	Workshop On Conceptual And Empirical Research
6	Seminar On The Government Funding And Policy For Research And Development

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S.NO	NAME OF THE FACULTY	DESIGNATION	PATENT FILED
1	Dr.K.Sridharan Dr.R.Sankar Mr.K.Sriram Mr.E.Deeparaj Mr.S.Karthikeyan Mr.P.Eswaran Mr.K.S.Ramesh Mr.M.Sivakumar	PRINCIPAL HOD/MECH AP/MECH AP/MECH AP/MECH AP/MECH AP/MECH AP/MECH	Semi Automatic Exotic Plants Cleaning Machine
2	Dr.K.Sridharan Dr.R.Sankar Mr.V.Magesh Mr.S.Ganesh Kumar Mr.V.Arul Murugan	PRINCIPAL HOD/MECH HOD/AUTO AP/AUTO AP/AUTO	Procedure For Reduce Residual Stress In Low Carbon Steel Joints By Rotating Arc Welding Method
3	Dr.C.Saravanan	HOD/EEE	Voice-Activated Home energy Management using Machine Learning
4	Mrs.V.Mohanapriya Mrs.P.Reena	HOD/CIVIL AP/CIVIL	Underground Water Pollution Detection Device
5	Mrs.V.Sathiyapriya	AP/CIVIL	Device To Perform Analysis Of Polymer Concrete
6	Mrs.M.C.Savithri	AP/CSE	An E-Vehicle Wireless Charging System

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NPTEL Online Certification

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This certificate is awarded to

SANKAR N

for successfully completing the course

Advances in Welding and Joining Technologies

with a consolidated score of **53** %

Online Assignments	14.33/25	Proctored Exam	38.27/75

Total number of candidates certified in this course: **141**

Aug-Oct 2023

(8 week course)

Prof. T. V. Bharat
Head, Centre for Educational Technology
NPTEL Coordinator, IIT Guwahati

Indian Institute of Technology Guwahati

swayam

Roll No: NPTEL23ME102S535400654 To verify the certificate No. of credits recommended: 2 or 3

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Advances in Welding and Joining Technologies

with a consolidated score of **53 %**

Prof. Andrew Thangaraj
NPTEL Coordinator
IIT Madras

(Aug-Oct 2023)

Roll No: NPTEL23ME102S535400654

Duration of NPTEL course : 8 Weeks

The candidate has studied the above course through MOOCs mode, has submitted online assignments and passed proctored exams.
This certificate is therefore acceptable for promotions under CAS as per AICTE notifications dated 24th July 2018, similar to other refresher / orientation courses.
F.No. AICTE / RIFD / FDP through MOOCs / 2017-18

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Elite

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This certificate is awarded to

DEEPARAJ E

for successfully completing the course

Research Methodology

with a consolidated score of **64** %

Online Assignments	19.17/25	Proctored Exam	44.75/75

Total number of candidates certified in this course: 2928

Devendra Jalihal

Prof. Devendra Jalihal
Chairperson,
Centre for Outreach and Digital Education, IITM

Feb-Apr 2024

(8 week course)

Prof. Andrew Thangaraj
NPTEL Coordinator
IIT Madras

Indian Institute of Technology Madras

swayam

Roll No: NPTEL24GE21S55460477 To verify the certificate No. of credits recommended: 2 or 3

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(Funded by the MoE, Govt. of India)

This certificate is awarded to

RENUKADEVI M

for successfully completing the course

Cloud Computing

with a consolidated score of **57** **%**

Online Assignments	23.31/25	Proctored Exam	33.42/75

Total number of candidates certified in this course **23872**

Jan-Apr 2024

(12 week course)

Prof. Haimanti Banerji
Coordinator, NPTEL
IIT Kharagpur

Indian Institute of Technology Kharagpur

swayam

Roll No: NPTEL24CS17S355400031 To verify the certificate No. of credits recommended: 3 or 4

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Elite

NPTEL Online Certification

(Funded by the MoE, Govt. of India)

This certificate is awarded to

SAVITHRI M C

for successfully completing the course

Computer Networks and Internet Protocol

with a consolidated score of **72** **%**

Online Assignments	24.38/25	Proctored Exam	47.45/75

Total number of candidates certified in this course: **9310**

Jan-Apr 2024

(12 week course)

Prof. Haimanti Banerji
Coordinator, NPTEL
IIT Kharagpur

Indian Institute of Technology Kharagpur

swayam

Roll No: NPTEL24CS19S355400057 To verify the certificate No. of credits recommended: 3 or 4

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NPTEL Online Certification

(Funded by the MoE, Govt. of India)

This certificate is awarded to

S THARANI

for successfully completing the course

Data Base Management System

with a consolidated score of **56** **%**

Online Assignments	21.46/25	Proctored Exam	34.5/75

Total number of candidates certified in this course: **6225**

Jan-Mar 2024

(8 week course)

Prof. Haimanti Banerji
Coordinator, NPTEL
IIT Kharagpur

Indian Institute of Technology Kharagpur

swayam

Roll No: NPTEL24CS21S553900277 To verify the certificate No. of credits recommended: 2 or 3

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PATENT PUBLICATION

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Department for Promotion of Industry and Internal Trade
Ministry of Commerce & Industry,
Government of India

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INTELLECTUAL PROPERTY INDIA
PATENTS | DESIGNS | TRADE MARKS | GEOGRAPHICAL INDICATIONS

Application Details	
APPLICATION NUMBER	202341083786
APPLICATION TYPE	ORDINARY APPLICATION
DATE OF FILING	08/12/2023
APPLICANT NAME	**J.K.K.MUNIRAJAH COLLEGE OF TECHNOLOGY**
TITLE OF INVENTION	SEMI AUTOMATIC EXOTIC PLANTS CLEANING MACHINE
FIELD OF INVENTION	CHEMICAL
E-MAIL (As Per Record)	
ADDITIONAL-EMAIL (As Per Record)	sankarn@jkkmct.edu.in
E-MAIL (UPDATED Online)	
PRIORITY DATE	
REQUEST FOR EXAMINATION DATE	19/02/2024
PUBLICATION DATE (U/S 11A)	05/01/2024

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Name of the Applicant: J.K.K MUNIRAJAH COLLEGE OF TECHNOLOGY

710050714

"FORM 2"

THE PATENTS ACT, 1970

(39 of 1970)

&

The Patents Rules, 2003

COMPLETE SPECIFICATION (see section 10)

1. TITLE OF THE INVENTION

SEMI AUTOMATIC EXOTIC PLANTS CLEANING MACHINE

2. NAME OF THE APPLICANT

J.K.K MUNIRAJAH COLLEGE OF TECHNOLOGY

ADDRESS FOR COMMUNICATION

The Principal

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Mobile No:8946040512

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NATIONALITY

Indian

3. PREAMBLE OF THE DESCRIPTION

The following specification particularly describes the invention relates to the field of cleaning machine for exotic plants.

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4. FIELD OF INVENTION

The present invention relates to the field of aquatic plants cleaning machine. More specifically it relates to the cleaning of exotic plants from lakes, ponds and other water environments.

5. BACKGROUND OF THE INVENTION

Exotic plants, when introduced into water environments, can have both positive and negative effects. On one hand, these plants can enhance the aesthetic appeal of water bodies, creating visually stunning landscapes and attracting wildlife. They may also provide shelter and food sources for aquatic organisms, contributing to the overall biodiversity. Additionally, some exotic plants have the ability to absorb excess nutrients, such as nitrogen and phosphorus, helping to mitigate water pollution issues.

However, the introduction of exotic plants can also lead to various negative impacts. These plants often lack natural predators and competitors in their new habitat, allowing them to grow rapidly and outcompete native species. This can result in a reduction of native plant diversity, which in turn affects the ecological balance of the water ecosystem. Exotic plants can form dense mats or thick layers on the water surface, impeding sunlight penetration and hindering the growth of submerged plants. This can lead to decreased oxygen levels in the water, affecting the survival of fish and other aquatic organisms.

Moreover, exotic plants may alter the physical structure of the water environment. Some species have extensive root systems that can disturb sediment and increase water turbidity. This turbidity reduces water clarity and can negatively impact the growth of submerged aquatic vegetation, which is crucial for maintaining healthy aquatic ecosystems. Additionally, the decomposition of exotic plants can consume oxygen during the process, further exacerbating the low oxygen conditions in the water.

To mitigate the negative effects of exotic plants, it is important to prevent their introduction into sensitive water environments and implement early detection and rapid response measures when they are detected. Regular monitoring, removal efforts, and the promotion of native plant species can help restore and preserve the ecological integrity of water bodies, ensuring a balanced and sustainable aquatic ecosystem.

The exotic plants can have significant negative effects on native species and

ecosystem processes. These effects include competition for resources, alteration of habitat structure, disruption of nutrient cycles, and changes in fire regimes. Overall, the review highlights the importance of managing exotic plant invasions to preserve native biodiversity (Smith and Johnson et.al, 2019). The exotic plants can reduce native plant diversity, abundance, and community composition. They also found evidence of changes in ecosystem functions such as nutrient cycling and primary productivity (Davis et.al, 2020). Wilson et al. (2018) highlights the significant negative impacts of invasive species on native ecosystems, including loss of native species, changes in ecosystem processes, and alteration of ecosystem services. The study emphasizes the urgent need for effective management and prevention strategies to address the threat posed by exotic plants and other invasive species.

The exotic plant invasions can lead to the degradation or loss of ecosystem services, such as water purification, pollination, and recreational opportunities. These impacts can have direct consequences on human well-being, including economic losses and reduced quality of life. The study emphasizes the importance of managing exotic plant invasions for the preservation of ecosystem services and human welfare (Pysek et.al, 2021).

Dantonio and Meyerson (2020) synthesized the role of exotic plant species as both problems and solutions in ecological restoration. While exotic plants can pose challenges by outcompeting native species, the review also highlights instances where carefully selected exotic species have aided in restoration efforts. The study emphasizes the need for context-specific assessments to determine the suitability of exotic plants in restoration projects.

Vilà et al. (2022) conducted a global review on the effects of exotic plants on soil properties and processes. The study reveals that exotic plant invasions can alter soil nutrient availability, microbial communities, and organic matter decomposition rates.

Brown, C., Green, M., & Davis, R. (2020) have investigated the effects of exotic plant control on soil microbial communities. The research showed that the removal of exotic plants led to changes in soil microbial composition and diversity. These changes had both positive and negative effects, with some microbial groups benefiting from the removal while others were negatively impacted. The findings highlight the importance of considering soil microbial communities in exotic plant removal efforts.

M., Smith, K., & Wilson, L. (2021) have examined the impacts of exotic plant invasion on avian communities. The study found that exotic plants can negatively affect avian populations by altering nesting habitats, reducing food availability, and disrupting ecological interactions. However, the effects varied among different bird species and ecosystems. The findings emphasize the need for targeted management strategies to mitigate the negative impacts of exotic plants on avian communities.

Garcia, A., Martinez, B., & Lopez, D. (2022) had summarized the research findings on the effects of exotic plant removal on stream ecosystems. The study demonstrated that the removal of exotic plants can improve water quality, increase native plant diversity, and enhance habitat conditions for aquatic organisms. The results suggest that exotic plant control measures are crucial for maintaining the ecological integrity of stream ecosystems.

Thompson, L., Davis, S., & Wilson, J. (2018) had investigated the effects of exotic plant removal on pollinator communities. The research demonstrated that the removal of exotic plants resulted in an increase in both the abundance and diversity of pollinators. Native pollinator species, in particular, showed a positive response to the removal of exotic plants. The findings suggest that the management of exotic plants can have significant benefits for pollinator conservation.

The use of phytoremediation, a river plant cleaning method, has been shown to be a promising and environmentally-friendly approach to remove pollutants from water bodies. This method utilizes aquatic plants to absorb and degrade contaminants such as heavy metals, pesticides, and organic compounds. A study conducted by Zhang et al. (2019) demonstrated the effectiveness of phytoremediation in cleaning up a heavily polluted river in China, with significant reductions in pollutant levels observed after six months of plant growth.

6. SUMMARY OF THE INVENTION

The semi-automatic exotic plants cleaning machine is a specialized device designed to efficiently remove and manage aquatic vegetation in water bodies. Combining mechanical and manual elements, this machine streamlines the process of cleaning lakes, ponds and other water environments. Its semi-automatic nature allows for operator control while leveraging mechanical components for enhanced effectiveness. The machine proves instrumental in maintaining ecological balance by preventing the overgrowth of aquatic plants, ensuring the health of aquatic ecosystems.

The main objective is to tackle water pollution, which is identified as a significant problem globally. The focus is on the pollution caused by exotic plants in particular.

The invention aims to design a semi-automated machine specifically designed for cleaning exotic plants from lakes and ponds. This machine will help in the removal of harmful plants that negatively impact the water ecosystem.

The machine is intended to be environmentally friendly, ensuring that it does not cause additional harm to the ecosystem or contribute to pollution. This objective emphasizes the importance of sustainable solutions.

The machine should be capable of operating in various environmental conditions, specifically those found in lakes and ponds. It should be designed to withstand water exposure and be functional in different types of water bodies.

Overall, the objectives focus on combating water pollution caused by exotic plants by designing an environmentally friendly and adaptable cleaning machine powered by a dc gear motor.

7. BRIEF DESCRIPTION OF DRAWING

The manner, in which planned inventions work is given a more particular description below, briefly summarised above, by reference to the components.

Figure 1 illustrates an exploded side view of the device according to the present invention.

Figure 101 is a water wheel; it is used for move forward or backward of machine. A water wheel consists of a wheel with a number of blades arranged on the outside rim.

Figure 102 is an air tube; it is used to float the machine in water environments.

Figure 103 is a frame: it is supported for machine function and this is made up of mild steel material.

Figure 104 is a controller box; it is used to control the water wheel's moment and speed.

Figure 105 illustrates a belt conveyor designed for the specific purpose of collecting and transporting exotic plants, particularly from water environments.

Figure 106 is a DC gear motor; it is used to convert direct current electrical energy into rotary motion mechanical energy. This motor is used to rotate the belt conveyer system.

Figure 107 is a storage unit; it is used for store the collected exotic plants while machine operating conditions.

Figure 108 is a battery; it is used to supply the power of the whole system through the controller box.

8. DETAILED DESCRIPTION OF INVENTION

Referring to **Figure 1** a front view of an exotic plants cleaning machine is shown. The exotic plants cleaning machine Figure 1 includes a water wheel 101, air tubes 102, mild steel frame 103, controller box 104, belt conveyor 105, DC gear motor 106, storage unit 107 and battery 108. The whole system accomplished the floating nature due to the buoyancy force incorporated with the help of air tubes (102) situated at the bottom base of the whole system. The mild steel frame (103) defines its stability, strength, and effectiveness as a whole system. It is the structural body of the machine. The machine function is supported by this frame (103). The balancing of the system was taken care by two water wheel (101) (propeller) provided on both sides situated at the mid-back side of the system. But to provide balancing is not the only function of the water wheel (101). The other major function the water wheel performs is providing movement to the system in any direction, let be front, back, left and right. The front and back motion is provided by rotating the water wheel in respective directions with the help of DC gear motors (106) and the couplings situated in the main system and toggles switches situated in the main controller box (104). The turning motion is provided by starting and stopping the respective water wheel (101); for example, if the system is needed to turn right, the right water wheel stops and the left one rotates, and vice versa for the left turn. These water wheels are also provided with a speed control mechanism situated in the main controller box (104). Firstly, the machine (Figure 1) is made to travel to the position of the exotic plants floating on the surface of the water environment. Once it gets to that point, the water wheel stops. The machine collects the exotic plants using a belt conveyer system (105). The collected exotic plants are stored in to the storage unit (107).

9. CLAIMS

We claim,

1. An apparatus for exotic plants cleaning machine, comprising: a water wheel; a air tubes; a mild steel frame; a controller box; a belt conveyor; DC gear motor; storage unit; and a battery.
2. The machine as claimed in claim 1, wherein said two water wheels positioned on the mid-back side, playing a pivotal role in maintaining balance and ensuring stability throughout its operation.
3. The machine as claimed in claim 1, wherein said its floating nature through buoyancy, facilitated by air tubes positioned at the bottom base.
4. The machine as claimed in claim 1, wherein said water wheel offers both balance and directional movement such as forward, backward, left, and right. This innovative design not only ensures stability but also facilitates versatile motion, making it a valuable feature for various applications.
5. The machine as claimed in claim 1, wherein said a front and back motion is controlled by rotating the water wheel in respective directions using DC gear motors and couplings.
6. The machine as claimed in claim 1, wherein said a machine, equipped with a belt conveyor system, is designed to navigate to the location of exotic plants floating on the water's surface. Its purpose is to efficiently collect these plants.
7. The machine as claimed in claim 1, wherein said a system traveling to the plants positions and utilizing the conveyor to collect the exotic plants.
8. The machine as claimed in claim 1, wherein said a collected exotic plants are stored in storage unit.

Dated this day of 04/12/2023

Signature of the applicant

10. ABSTRACT

Nowadays, water pollution is the most important problem in the world because water is the main source of human life. The water is polluted in many ways, such as by sewage leakage, chemicals, and exotic plants. The exotic plants are harmful and affect the ecosystem's water. The exotic plants, such as water man file and bracelet, these plants are polluting the lake, and they are also not useful to the acoustic system. These plants block sunlight from reaching other plants. Also, these plants provide habitat for mosquitoes and reduce the oxygen level in the water. These factors pollute the lake and water ecosystems. So cleaning exotic plants is very important; hence, we invented a semi-automatic exotic plant cleaning machine. This machine is environmentally friendly and can run in any conditions afforded by the lake and pond. This machine works on a dc gear motor, and the motor is powered by battery power systems.

Name of the Applicant: J.K.K MUNIRAJAH COLLEGE OF TECHNOLOGY

Total No. of Sheets: 01
Sheet No: 1

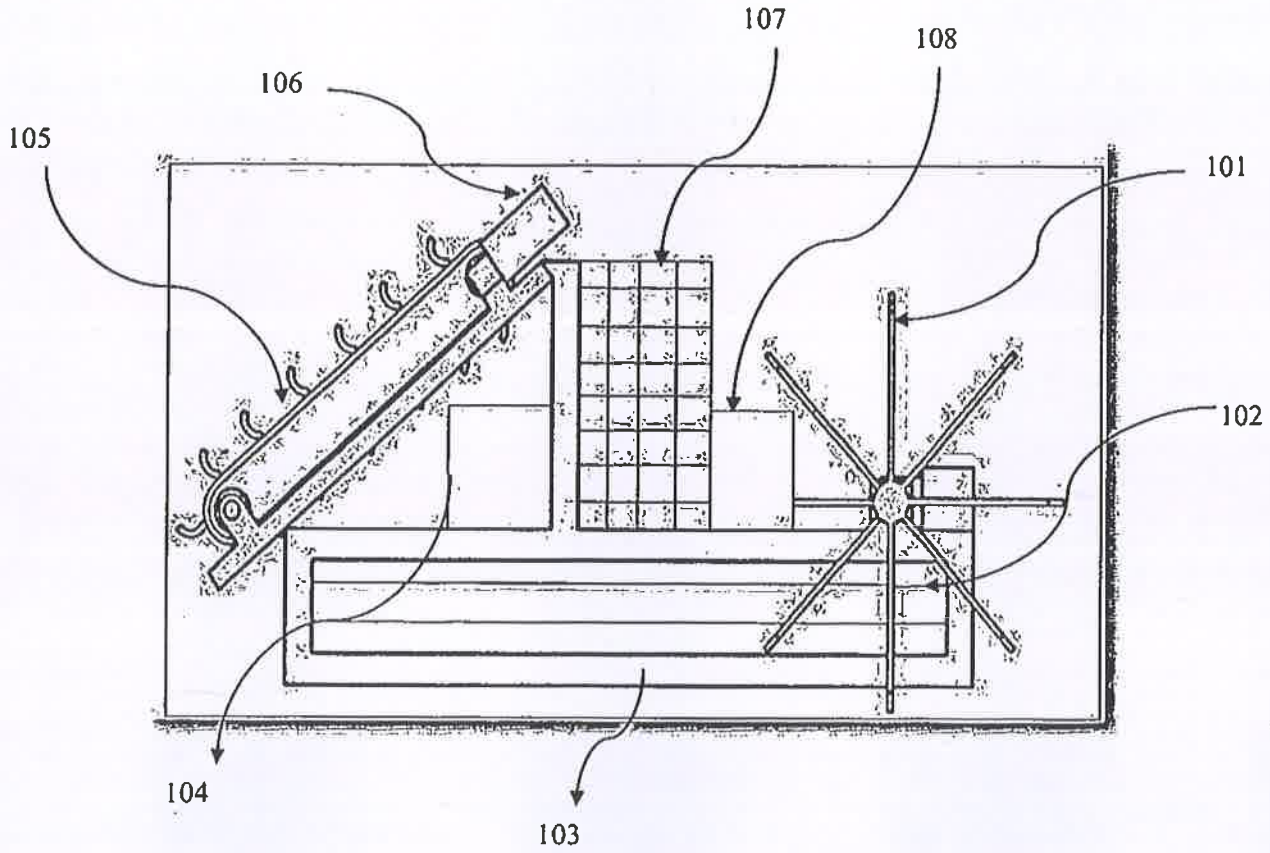

FIGURE 1

Dated this day of 04/12/2023

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GOBI (Tk), ERODE (Dt).

Signature of the applicant

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OF TECHNOLOGY
T.N. PALAYAM (Po)-638 506.
GOBI (Tk), ERODE (Dt).

710050715

FORM 3

THE PATENTS ACT,

1970 (39 of 1970)

and

THE PATENTS RULES,
2003

STATEMENT AND UNDERTAKING UNDER SECTION 8

(See section 8; Rule 12)

1. Name of the applicant(s).	We J.K.K.MUNIRAJAH COLLEGE OF TECHNOLOGY T.N.Palayam, Gobi,Erode-638506 hereby declare:
2. Name, address and nationality of the joint applicant.	(i) that We have not made any application for the same/substantially the same invention outside India Or ~~(ii) that I/We who have made this application No.....dated .....alone/jointly with ....., made for the same/ substantially same invention, application(s) for patent in the other countries, the particulars of which are given below:~~

~~Name of the country~~	~~Date of application~~	~~Application No.~~	~~Status of the application~~	~~Date of publication~~	~~Date of grant~~

3. Name and address of the assignee	~~(iii) that the rights in the application(s) has/have been assigned to.....~~ .....

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JKK MUNIRAJAH COLLEGE
OF TECHNOLOGY
T.N. PALAYAM (Po)-638 506.
GOBI (Tk), ERODE (Dt).

	~~.....~~ ~~..... that I/We undertake that upto the date of grant of the patent by the Controller, I/We would keep him informed in writing the details regarding corresponding applications for patents filed outside India within six months from the date of filing of such application.~~ ~~Dated this.....day of.....20.....~~
4. To be signed by the applicant or his authorized registered patent agent.	Signature. PRINCIPAL JKK MUNIRAJAH COLLEGE OF TECHNOLOGY T.N. PALAYAM (Po)-638 506. GOBI (Tk), ERODE (Dt).
5. Name of the natural person who has signed.	
	To The Controller of Patents, The Patent Office, Chennai.
Note.- Strike out whichever is not applicable;	

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FORM 5

THE PATENTS ACT, 1970

(39 of 1970)

&

The Patents Rules, 2003

DECLARATION AS TO INVENTORSHIP

(See section 10(6) and rule 13(6)]

1. NAME OF APPLICANT	J.K.K.MUNIRAJAH COLLEGE OF TECHNOLOGY

hereby declare that the true and first inventors of the invention disclosed In the complete specification filed in pursuance of my /our application numbered dated are

2. INVENTORS

(a) NAME

1. Dr.N.Sankar
2. Dr.K.Sridharan
3. Mr.K.Sriram
4. Mr.E.Deeparaj
5. Mr.S.Karthikeyan
6. Mr.P.Eswaran
7. Mr.K.S.Ramesh
8. Mr.M.Sivakumar

(b) NATIONALITY : INDIAN

(c) ADDRESS

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Erode-638506.
Tamil Nadu, India.
Mobile No:8946040512
E-mail: sankarn@jkkmct.edu.in

Dated this 04 day of 12/2023

Signature: -

Name of the signatory

1. Dr.N.Sankar 2. Dr.K.Sridharan 3. Mr.K.Sriram 4. Mr.E.Deeparaj

PRINCIPAL
JKK MUNIRAJAH COLLEGE
OF TECHNOLOGY
T.N. PALAYAM (Po)-638 506.
GOBI (Tk), ERODE (Dt).

5.Mr.S.Karthikeyan 6.Mr.P.Eswaran 7.Mr.K.S.Ramesh 8.Mr.M.Sivakumar

~~3. DECLARATION TO BE GIVEN WHEN THE APPLICATION IN INDIA IS FILED BY THE P APPLICANT (S) IN THE CONVENTION COUNTRY:-~~

~~We the applicant(s) in the convention country hereby declare that our right to apply for a patent in India is by way of assignment from the true and first inventor(s).~~

Dated this day of 20

Signature: -
Name of the signatory

~~4. STATEMENT (to be signed by the additional inventor(s) not mentioned in the application form) We assent to the invention referred to in the above declaration, being included in the complete specification filed in pursuance of the stated application.~~

Dated this day Of 20

Signature of the additional inventor(s): -

Name: -
To,
The Controller of Patent
The Patent Office,
Chennai.
Note

- Repeat boxes In case of more than one entry.
- To be signed by the applicant(s) or by authorized registered patent agent otherwIse where mentioned.
- Name of the inventor and applicant should be given In full, family name in the beginning
- Complete address of the inventor should be given stating the postal Index no./code, state and country.
- Strike out the column which Is/ are not applicable.

PRINCIPAL
JKK MUNIRAJAH COLLEGE
OF TECHNOLOGY
T.N. PALAYAM (Po)-638 506.
GOBI (Tk), ERODE (Dt).

AP·NO 20234108
CBR 57204
08.12.202
₹ 2750/
08/12/2

FORM 9
THE PATENTS ACT, 1970
(39 of 1970)
&
The Patents Rules, 2003
REQUEST FOR PUBLICATION
[See section 11A(2); rule 24A]

710050717

1. Name, address and nationality of the applicant(s).

I/We[1]........J.K.K. MUNIRAJAH COLLEGE OF TECHNOLOGY T.N. PALAYAM, GOBI(TK) ERODE (DT) - 638 506

2. To be signed by the applicant or his authorized registered patent agent.

hereby request for early publication of my/our application for Patent No.................... dated ....under section 11A(2) of the Act.

Dated this ....04....day of ......12.......................... 2023

3. Name of the natural person who has signed.

Signature PRINCIPAL
(JKK MUNIRAJAH COLLEGE OF TECHNOLOGY T.N. PALAYAM (Po)-638 506. GOBI (Tk), ERODE (Dt).)[3]....

To
The Controller of Patents,
The Patent Office,
At ...Chennai...............................

Note: - For fee : See First Schedule

PRINCIPAL
JKK MUNIRAJAH COLLEGE OF TECHNOLOGY
T.N. PALAYAM (Po)-638 506.
GOBI (Tk), ERODE (Dt).

PATENT OFFICE CHENNAI 09/12/2023 15:19

"FORM 28"
THE PATENTS ACT,
1970
(39 of 1970)
AND
THE PATENTS RULES,
2003

710050718

TO BE SUBMITTED BY AS MALLENTITY/START UP/EDUCATIONAL INSTITUTION

[See rules 2 (fa), 2(fb), 2(ca) and 7]

1	Insert name, address and nationality.	We J.K.K.MUNIRAJAH COLLEGE OF TECHNOLOGY Applicant in respect of the patent application no. ..... Hereby declare that we are a small entity in accordance with rule 2(fa)or a startup in accordance with rule 2(fb) or an educational institution in accordance with rule 2 (ca) and submit the following document(s) as proof:
2	Documents to be submitted	
	i. For claiming the status of a small entity:	
	A. For an Indian applicant: Evidence of registration under the Micro, Small and Medium Enterprises Act, 2006 (27 of 2006).	
	B. In case of a foreign entity : Any other document.	
	ii. For claiming the status of a startup	
	A. For an Indian applicant: Any document as evidence of eligibility, as defined in rule 2 (fb).	
	B. In case of a foreign entity : Any other document.	
	iii. For claiming the status of an educational institution	
	A. For an Indian applicant : Any document as evidence of eligibility	
	B. In case of a foreign educational institution : Any other document.	
3	To be signed by the applicant	The information provided here in is correct to the best of my knowledge and belief. Dated this..04....day of..12..../.2023
4	Name of the natural person who has signed.	Signature..... PRINCIPAL JKK MUNIRAJAH COLLEGE OF TECHNOLOGY T.N. PALAYAM (Po)-638 506. GOBI (Tk), ERODE (Dt).

PRINCIPAL
JKK MUNIRAJAH COLLEGE
OF TECHNOLOGY
T.N. PALAYAM (Po)-638 506.
GOBI (Tk), ERODE (Dt).

	Designation and official seal, if any, of the person who has signed.	(Name). Dr. K. Sridharan (Designation)..Principal..... To The Controller of Patents, The Patent Office, Chennai.

PRINCIPAL
JKK MUNIRAJAH COLLEGE
OF TECHNOLOGY
T.N. PALAYAM (Po)-638 506,
GOBI (Tk), ERODE (Dt).

All India Council for Technical Education

(A Statutory body under Ministry of Education, Govt. of India)

Nelson Mandela Marg,Vasant Kunj, New Delhi-110070 Website: www.aicte-india.org

APPROVAL PROCESS 2023-24

Extension of Approval (EoA)

F.No. Southern/1-36496143221/2023/EOA

Date: 02-Jun-2023

To,

The Principal Secretary
(Higher Education) Govt. of Tamil Nadu,
N. K. M. Bld. 6th Floor Secretariat,
Chennai-600009

Sub: Extension of Approval for the Academic Year 2023-24

Ref: Online application of the Institution submitted for Extension of Approval for the Academic Year 2023-24

Sir/Madam,

In terms of the provisions under the All India Council for Technical Education (Grant of Approvals for Technical Education) Regulations, 2020 notified on 4th February 2020 and amended on 24th February 2021 and norms standards, procedures and conditions prescribed by the Council from time to time, I am directed to convey the approval to:

Permanent Id	1-11002585	Application Id	1-36496143221
Name of the Institution	JKK MUNIRAJAH COLLEGE OF TECHNOLOGY	Name of the Society/Trust	ANNAI JKK SAMPOORANIAMMAL CHARITABLE TRUST
Institution Address	377/1A,PUNJAI THURAYAMPALAYAM, THOOKKANICKENPALAYAM(POST) , THOOKKANICKENPALAYAM, GOBI (TK) ERODE, ERODE, ERODE, Tamil Nadu, 638506	Society/Trust Address	,KOMARAPALAYAM,NAMAKKAL,Tamil Nadu,638183
Institution Type	Private-Self Financing	Region	Southern
Year of Establishment	2008		

To conduct following Courses with the Intake indicated below for the Academic Year 2023-24

Level	Program	Course	Affiliating Body (University /Body)	Intake Approved for 2022-23	Intake Approved for 2023-24	NRI Approval Status	FN/ Gulf quota/ OCI Approval Status
UNDER GRADUATE	ENGINEERING AND TECHNOLOGY	ARTIFICIAL INTELLIGENCE (AI) AND DATA SCIENCE	Anna University, Chennai	0	60##	NA	NA
UNDER GRADUATE	ENGINEERING AND TECHNOLOGY	AUTOMOBILE ENGINEERING	Anna University, Chennai	30	30	NA	NA

PRINCIPAL
JKK MUNIRAJAH COLLEGE
OF TECHNOLOGY
T.N. PALAYAM (Po)-638 506.
GOBI (Tk), ERODE (Dt).

Level	Program	Course	Affiliating Body (University /Body)	Intake Approved for 2022-23	Intake Approved for 2023-24	NRI Approval Status	FN / Gulf quota/ OCI/ Approval Status
UNDER GRADUATE	ENGINEERING AND TECHNOLOGY	CIVIL ENGINEERING	Anna University, Chennai	30	30	NA	NA
UNDER GRADUATE	ENGINEERING AND TECHNOLOGY	COMPUTER SCIENCE AND ENGINEERING	Anna University, Chennai	60	60	NA	NA
UNDER GRADUATE	ENGINEERING AND TECHNOLOGY	COMPUTER SCIENCE AND ENGINEERING (CYBER SECURITY)	Anna University, Chennai	0	30##	NA	NA
UNDER GRADUATE	ENGINEERING AND TECHNOLOGY	ELECTRICAL AND ELECTRONICS ENGINEERING	Anna University, Chennai	60	30	NA	NA
UNDER GRADUATE	ENGINEERING AND TECHNOLOGY	ELECTRONICS & COMMUNICATION ENGG	Anna University, Chennai	60	30	NA	NA
UNDER GRADUATE	ENGINEERING AND TECHNOLOGY	INFORMATION TECHNOLOGY	Anna University, Chennai	60	60	NA	NA
UNDER GRADUATE	ENGINEERING AND TECHNOLOGY	MECHANICAL ENGINEERING	Anna University, Chennai	60	30	NA	NA
POST GRADUATE	MANAGEMENT	MBA	Anna University, Chennai	60	60	NA	NA
POST GRADUATE	COMPUTER APPLICATIONS	MASTERS IN COMPUTER APPLICATIONS	Anna University, Chennai	30	30	NA	NA
POST GRADUATE	ENGINEERING AND TECHNOLOGY	COMPUTER SCIENCE AND ENGINEERING	Anna University, Chennai	18	18	NA	NA
POST GRADUATE	ENGINEERING AND TECHNOLOGY	POWER ELECTRONICS AND DRIVES	Anna University, Chennai	9	9	NA	NA

PRINCIPAL
JKK MUNIRAJAH COLLEGE OF TECHNOLOGY
T.N. PALAYAM (Po), 638506.
GOBI (Tk), ERODE (Dt).

Level	Program	Course	Affiliating Body (University /Body)	Intake Approved for 2022-23	Intake Approved for 2023-24	NRI Approval Status	FN / Gulf quota/ OCI/ Approval Status
POST GRADUATE	ENGINEERING AND TECHNOLOGY	APPLIED ELECTRONICS	Anna University, Chennai	9	9	NA	NA
POST GRADUATE	ENGINEERING AND TECHNOLOGY	MANUFACTURING ENGINEERING	Anna University, Chennai	18	18	NA	NA

Approved New Course(s)

It is mandatory to comply with all the essential requirements as given in APH 2023-24 (Appendix 6)

Important Instructions

1. The State Government/ UT/ Directorate of Technical Education/ Directorate of Medical Education shall ensure that 10% of reservation for Economically Weaker Section (EWS) as per the reservation policy for admission, operational from the Academic year 2019-20 is implemented without affecting the reservation percentages of SC/ ST/ OBC(NCL) / General. However, this would not be applicable in the case of Minority Institutions referred to the Clause (1) of Article 30 of Constitution of India. Such Institution shall be permitted to increase in annual permitted strength over a maximum period of two years.

2. The Institution offering courses earlier in the Regular Shift, First Shift, Second Shift/Part Time are now amalgamated as total intake and shall have to fulfil all facilities such as Infrastructure, Faculty and other requirements as per the norms specified in the Approval Process Handbook 2023-24 for the Total Approved Intake. Further, the Institutions Deemed to be Universities/ Institutions having Accreditation/ Autonomy status shall have to maintain the Faculty: Student ratio as specified in the Approval Process Handbook.

3. Strict compliance of Anti-Ragging Regulation, Establishment of Committee for SC/ ST, Establishment of Internal Committee (IC), Establishment of Online Grievance Redressal Mechanism, Barrier Free Built Environment for disabled and elderly persons, Fire and Safety Certificate should be maintained as per the provisions made in Approval Process Handbook and AICTE Regulation notified from time to time.

4. In case of any differences in content in this Computer generated Extension of Approval Letter, the content/information as approved by the Executive Council / General Council as available on the record of AICTE shall be final and binding.

5. As per the AICTE Notification dated 29.01.2014 and amended thereto, it shall be mandatory for each Technical Education Institution, University Department and Institution Deemed to be University imparting Technical Education to get accreditation (NBA) for at least 60% of the eligible courses in the next ONE (1) Years' time, otherwise EoA for the subsequent Academic Year (A.Y. 2024-25) shall not be issued by the Council.

6. Deemed to be University: Institutions Deemed to be Universities (Running Technical Education Programmes), it is mandatory to have AICTE approval from the Academic Year 2018-19 in compliance of the Hon'ble Supreme Court Order dated 03-11-2017 passed in CA No.17869- 17870 /2017.

PRINCIPAL
JKK MUNIRAJAH COLLEGE OF TECHNOLOGY
T.N. PALAYAM (Po)-638 506.
GOBI (Tk). ERODE (Dt).

Prof.Rajive Kumar
Member Secretary, AICTE

Copy to:

1. **The Director Of Technical Education**, Tamil Nadu**

2. **The Registrar**,**
   Anna University, Chennai

3. **The Principal / Director,**
   JKK MUNIRAJAH COLLEGE OF TECHNOLOGY
   377/1A,Punjai Thurayampalayam,
   Thookkanickenpalayam(Post),
   Thookkanickenpalayam,
   Gobi (Tk)
   Erode,
   Erode,Erode,
   Tamil Nadu,638506

4. **The Secretary / Chairman,**

   KOMARAPALAYAM,NAMAKKAL
   Tamil Nadu,638183

5. **Guard File(AICTE)**

Note: Validity of the Course details may be verified at http://www.aicte-india.org/

** Individual Approval letter copy will not be communicated through Post/Email. However, a consolidated list of Approved Institutions(bulk) may be downloaded from the respective login id's.

This is a computer generated Statement. No signature Required

PRINCIPAL
JKK MUNIRAJAH COLLEGE
OF TECHNOLOGY
T.N. PALAYAM (Po)-638 506.
GOBI (Tk), ERODE (Dt).

ANNA UNIVERSITY

SARDAR PATEL ROAD, CHENNAI - 600 025

REGISTRAR

Phone : +91 - 44 - 2235 2161
Office : +91 - 44 - 2235 7004
+91 - 44 - 2235 7003
Fax : +91 - 44 - 2235 1956
E-mail : registrar@annauniv.edu

Lr. No. 02/AFFLN/CAI/CBE/AU/2023-2024/7312 Date : 25-07-2023

To

The Principal
J K K Munirajah College of Technology
377/1A, Punjai Thurayampalayam,
Thookkanickenpalayam (Post),
Thookkanickenpalayam, Gobi (Tk), Erode - 638506.

Sir,

Sub : Anna University - Provisional Affiliation for the Existing course(s) / New course(s) / Variation in intake - U.G. / P.G. for the academic year 2023-2024 - granted - Reg.

Ref : 1. Your application for affiliation for the academic year 2023-2024
2. AICTE / COA / DGS Approval for the academic year 2023-2024 - submitted by the college

I am to inform that under the provisions of Section 7.6.1 of the Statutes for Affiliation of Anna University, Chennai, **Provisional Affiliation** for the continuation of the existing course(s) / new course(s) / variation in intake in the existing course(s) is granted for the following U.G / P.G. courses with the sanctioned intake mentioned against each course for the academic year **2023-2024** at **J K K Munirajah College of Technology, 377/1A, Punjai Thurayampalayam, Thookkanickenpalayam (Post), Thookkanickenpalayam, Gobi (Tk), Erode - 638506.**

Sl. No.	Degree	Course(s)	Sanctioned Intake	
			2022-2023	2023-2024
1.	B.E.	Automobile Engineering	30	30
2.	B.E.	Civil Engineering	30	30
3.	B.E.	Computer Science and Engineering	60	60
4.	B.E.	Electrical and Electronics Engineering	60	30
5.	B.E.	Electronics and Communication Engineering	60	30
6.	B.E.	Mechanical Engineering	60	30
7.	B.Tech.	Information Technology	60	60
8.	M.B.A.	Master of Business Administration	60	60
9.	M.C.A.	Master of Computer Applications	30	30
10.	M.E.	Applied Electronics	9	9
11.	M.E.	Computer Science and Engineering	18	18
12.	M.E.	Manufacturing Engineering	18	18
13.	M.E.	Power Electronics and Drives	9	9
14.	B.E.	Computer Science and Engineering (Cyber Security)	-	30
15.	B.Tech.	Artificial Intelligence and Data Science	-	60

PRINCIPAL
JKK MUNIRAJAH COLLEGE
OF TECHNOLOGY
T.N. PALAYAM (Po)-638 506.
GOBI (Tk), ERODE (Dt).

The above said Provisional Affiliation is being granted subject to the fulfillment of the conditions mentioned below:

- Production of originals of AICTE / COA / DGS approval and all other related documents for verification, whenever demanded by the University.
- Verification by a Committee towards the fulfillment of the conditions mentioned above and the continued fulfillment of the requirements for the above-mentioned course(s) as per the norms and standards of AICTE / University and the laboratory requirements as per the curricula and syllabi of Anna University, Chennai for the above courses. In the event of any violation/infringement of the above said conditions and / or the provisions of Anna University, Chennai Act / Statutes / Regulations, AICTE Act, norms & standards / regulations / guidelines or any other law being in force, suitable action including suspension / withdrawal of affiliation of course(s) may be initiated against the college.
- Students should not be admitted for the above course(s) for the next academic year 2024-2025 without obtaining the order of continuation of provisional affiliation for the next academic year from the University.

The Provisional Affiliation is granted without prejudice to the right of the University of requiring production of certificate required under Section 37-B of TAMILNADU Reforms (LC) Act 1961 subject to the decision of the Hon`ble High Court of Madras in W.A. No. 3454 / 2002 batch and W.A. No. 3482 / 2002 batch.

Centre for Affiliation of Institutions ANNA UNIVERSITY CHENNAI-25

REGISTRAR i/c
REGISTRAR
Anna University
Chennai - 25

Copy to:

1. The Controller of Examinations, Anna University, Chennai - 600 025.
2. The Director, Directorate of Technical Education, Chennai - 600 025.
3. The Regional Officer, Southern Regional Office, AICTE, 26, Haddows Road, Shastri Bhawan, Chennai - 600 006.
4. The Chairman, All India Council For Technical Education, Nelson Mandela Marg, Vasant Kunj, New Delhi-110070.
5. Master file.

PRINCIPAL
JKK MUNIRAJAH COLLEGE
OF TECHNOLOGY
T.N. PALAYAM (Po)-638 506.
GOBI (Tk), ERODE (Dt).

Office of the Controller General of Patents, Designs & Trade Marks
Department for Promotion of Industry and Internal Trade
Ministry of Commerce & Industry,
Government of India

सत्यमेव जयते

INTELLECTUAL PROPERTY INDIA
PATENTS | DESIGNS | TRADE MARKS
GEOGRAPHICAL INDICATIONS

Application Details	
APPLICATION NUMBER	202441017291
APPLICATION TYPE	ORDINARY APPLICATION
DATE OF FILING	11/03/2024
APPLICANT NAME	**J.K.K.MUNIRAJAH COLLEGE OF TECHNOLOGY**
TITLE OF INVENTION	PROCEDURE FOR REDUCE RESIDUAL STRESS IN LOW CARBON STEEL JOINTS BY ROTATING ARC WELDING METHOD
FIELD OF INVENTION	METALLURGY
E-MAIL (As Per Record)	
ADDITIONAL-EMAIL (As Per Record)	
E-MAIL (UPDATED Online)	
PRIORITY DATE	
REQUEST FOR EXAMINATION DATE	27/06/2024
PUBLICATION DATE (U/S 11A)	22/03/2024

PRINCIPAL
JKK MUNIRAJAH COLLEGE
OF TECHNOLOGY
T.N. PALAYAM (Po)-638 506.
GOBI (Tk), ERODE (Dt).

E/152091144481IN
(26/06/2024)

-)86116

"FORM 18" THE PATENTS ACT 1970 (39 of 1970) & The Patents Rules, 2003 REQUEST/EXPRESS REQUEST FOR EXAMINATION OF APPLICATION FOR PATENT [See section 11B and rule 20(4)(ii), 24B(1)(i)]	(FOR OFFICE USE ONLY) RQ No: R202440036582 Filing Date: 27/06/24 Amount of Fee Paid: 4400/- CBR No: 41864 Signature: 27/6/24

710070514

1. APPLICANT/OTHER INTERESTED PERSON

(a) NAME: J.K.K MUNIRAJAH COLLEGE OF TECHNOLOGY

(b) NATIONALITY: Indian

(a) ADDRESS: The Principal, J.K.K.Munirajah College of Technology, T.N.Palayam post, Gobi Taluk, Erode-638506. Tamil Nadu, India.

(b) DATE OF PUBLICATION OF THE APPLICATION UNDER SECTION 11A: 22.03.2024

2. Statement in case of request for examination made by the applicant(s)

We hereby request that our application for patent no. 202441017291 A filed on 11/03/2024 for the invention titled PROCEDURE FOR REDUCE RESIDUAL STRESS IN LOW CARBON STEEL JOINTS BY ROTATING ARC WELDING METHOD shall be examinedunder sections 12 and 13 of the Act.

OR

~~I/We hereby make an express request that my/our application for patent no. ________ filed on ________ based on Patent Cooperation Treaty (PCT) application no. ________ dated ________ made in country ________ shall be examined under sections 12 and 13 of the Act, immediately without waiting for the expiry of 31 months as specified in rule 20(4)(ii).~~

PRINCIPAL
JKK MUNIRAJAH COLLEGE OF TECHNOLOGY
T.N. PALAYAM (Po)-638 506.
GOBI (Tk). ERODE (Dt).

PATENT OFFICE CHENNAI 28/06/2024 11:34

~~3. Statement in case of request for examination made by any other interested person~~

~~We the interested person request for the examination of the application no._____ dated_____ filed by the applicant_____ titled_____ under sections 12 and 13 of the Act.~~

As an evidence of our interest in the application for patent following documents are submitted.

(a) Form 1 (Application)

(b) Form 2 (Complete specification)

(c) Form 9 (Request for publication)

(d) Form 18 (Request for examination of application for patent)

4. ADDRESS FOR SERVICE

The Principal, J.K.K.Munirajah College of Technology, T.N.Palayam post,

Gobi Taluk, Erode-638506. Tamil Nadu, India.

Dated this ~~24~~ day of 06) 24

Signature

Name of the signatory

The Principal,

J.K.K.Munirajah College of Technology,

T.N.Palayam post,Gobi Taluk, Erode-638506

To,

The Controller of Patents,

The Patent Office,

Chennai.

Note:-

***To be signed by the applicant(s) or by authorized registered patent agent.**

***Strike out the column(s) which is/are not applicable.**

***For fee: See First Schedule.**

PATENT OFFICE CHENNAI 28/06/2024

PRINCIPAL
J.K.K.MUNIRAJAH COLLEGE
OF TECHNOLOGY
T.N. PALAYAM (Po)-638 506.
GOBI (Tk). ERODE (Dt).

D/37509

RT 488'2115611N (R-01-04-24)

RT 461626372IN (11/03/24)

"FORM 1" THE PATENTS ACT 1970 (39 of 1970) and THE PATENTS RULES, 2003 **APPLICATION FOR GRANT OF PATENT** (See section 7,5 4 and135 and sub-rule (1) of rule 20)	(FOR OFFICE USE ONLY)	
710058464	Application No.	202441017291
	Filing date:	11-03-2024
	Amount of Fee paid:	1750 x.
	CBR No:	16266
	Signature:	[signature] 11/03/24

1. APPLICANT'S REFERENCE / IDENTIFICATION NO. (AS ALLOTTED BY OFFICE)	

2.TYPE OF APPLICATION [Please tick (✓) at the appropriate category]

Ordinary (✓)		Convention ()		PCT-NP ( )	
Divisional (✓)	Patent of Addition ()	Divisional ( )	Patent of Addition ()	Divisional ( )	Patent of Addition ()

3A.APPLICANT(S)

Name in Full	Nationality	Country of Residence	Address of the Applicant	
J.K.K.MUNIRAJAH COLLEGE OF TECHNOLOGY	Indian	India	House No. .	T. N. Palayam post,
			Street	Gobi Taluk,
			City	Erode District
			State	Tamil Nadu
			Country	India
			Pin code	638506

3B.CATEGORY OF APPLICANT [Please tick (✓) at the appropriate category]

Natural Person ( )	Other than Natural Person		
	Small Entity ()	Start up ( )	Others (✓)

4.INVENTORS [Please tick (✓) at the appropriate category]

Are all the inventors Same as the applicant (s) Named above?	Yes ()	No (✓)

If "No", furnish the details of the inventors

PRINCIPAL
JKK MUNIRAJAH COLLEGE OF TECHNOLOGY
T.N.PALAYAM (Po)-638 506.
GOBI (Tk). ERODE (Dt).

Name in Full	Nationality	Country of Residence	Address of the Inventor
1. Dr.N.Sankar	Indian	India	AP/MECH, Department of Mechanical Engineering J.K.K.Munirajah College of Technology T.N.Palayam post, Gobi Taluk, Erode District, 638506. Tamil Nadu, India.
2. Dr.K.Sridharan	Indian	India	PRINCIPAL, J.K.K.Munirajah College of Technology T.N.Palayam post, Gobi Taluk, Erode District, 638506. Tamil Nadu, India.
3.Mr.V.Magesh	Indian	India	HOD/AUTO, Department of Automobile Engineering J.K.K.Munirajah College of Technology T.N.Palayam post, Gobi Taluk, Erode District, 638506. Tamil Nadu, India.
4.Mr.S.Ganesh kumar	Indian	India	AP/ AUTO, Department of Automobile Engineering J.K.K.Munirajah College of Technology T.N.Palayam post, Gobi Taluk, Erode District, 638506. Tamil Nadu, India.
5.Mr.V.P.Arulmurugan	Indian	India	AP/ AUTO, Department of Automobile Engineering J.K.K.Munirajah College of Technology T.N.Palayam post, Gobi Taluk, Erode District, 638506. Tamil Nadu, India.

5.TITLE OF THE INVENTION

PROCEDURE FOR REDUCE RESIDUAL STRESS IN LOW CARBON STEEL JOINTS BY ROTATING ARC WELDING METHOD

PRINCIPAL
JKK MUNIRAJAH COLLEGE OF TECHNOLOGY
T.N. PALAYAM (Po)-638 506.
GOBI (Tk), ERODE (Dt).

6.AUTHORISED REGISTERED PATENT AGENT (S)	IN /PANo.	N/A
	Name	
	Mobile No.	
7. ADDRESS FOR SERVICE OF APPLICANT IN INDIA	Name	J.K.K.MUNIRAJAH COLLEGE OF TECHNOLOGY
	Postal Address	J.K.K.Munirajah College of Technology T.N.Palayam post, Gobi . Taluk, Erode District, 638506. Tamil Nadu, India.
	Telephone No.	04285-260754
	MobileNo.	8946040512
	FaxNo.	-
	E-mailID	sankam@jkkmct.edu.in

8.IN CASE OF APPLICATION CLAIMING PRIORITY OF APPLICATION FILED IN CONVENTION COUNTRY, PARTICULARS OF CONVENTION APPLICATION

Country	Application Number	Filing date	Name of the Applicant	Title of the invention	IPC (as classified in the Convention country)

9.IN CASE OF PCTNATIONAL PHASE APPLICATION, PARTICULARS OF INTERNATIONAL APPLICATION FILED UNDER PATENT CO- OPERATION TREATY (PCT)

International application number	International filing date

10.IN CASE OF DIVISIONAL APPLICATION FILED UNDER SECTION 16, PARTICULARS OF ORIGINAL (FIRST) APPLICATION

Original (first) application No.	Date of filing of original (first) application

11. IN CASE OF PATENT OF ADDITION FILED UNDER SECTION 54, PARTICULARS OF MAIN APPLICATION OR PATENT

PRINCIPAL
JKK MUNIRAJAH COLLEGE OF TECHNOLOGY
T.N. PALAYAM (Po)-638 506.
GOBI (Tk), ERODE (Dt).

PATENT OFFICE CHENNAI 12/03/2024 13:57

Main application /patent No.	Date of filing of main application

12.DECLARATIONS

(i) Declaration by the inventors

(In case the applicant is an assignee: the inventors may sign herein below or the applicant may upload the assignment or enclose the assignment with this application for patent orsendtheassignmentbypost/electronictransmissiondulyauthenticatedwithintheprescribedperiod).

We, the above named inventors are the true & first inventors for this Invention anddeclarethattheapplicantshereinareourassigneeorlegalrepresentative.

(a) Date

(b) Signature(s)

(c) Name(s)

1(b) Name (c) Signature

1. Dr.N.Sankar 2. Dr.K.Sridharan 3.Mr.V.Magesh

4.Mr.S.Ganesh kumar 5.Mr.V.P.Arulmuruan

(ii) Declaration by the applicant in the convention country

(In case the applicant in India is different than the applicant in the convention country: the applicant in the convention country may sign herein below or applicant in India may upload the assignment from the applicant in the convention country or enclose the said assignment with this application for patent or send the assignment by post /electronic transmission duly authenticated within the prescribed period)

We, the applicant in the convention country declare that the applicants herein are our assignee or legal representative.

(a) Date 08/2/24

(b) Signature (s)

(c) Name (s) of the signatory

PRINCIPAL
JKK MUNIRAJAH COLLEGE OF TECHNOLOGY
T.N. PALAYAM (Po)-638 506.
GOBI (Tk). ERODE (Dt).

For J.K.K.MUNIRAJAH COLLEGE OF TECHNOLOGY

PRINCIPAL
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(iii) Declaration by the applicants

We the applicants here by declares that:-

- We are in possession of the above – mentioned invention.
- The complete specification relating to the invention is filed with this application.
- The invention as disclosed in the specification uses the biological material from India and the necessary permission from the competent authority shall be submitted by us before the grant of paten to us.
- There is no lawful ground of objections to the grant of the Patent to us.
- We are the true & first inventors.
- We are the assignee or legal representative of true & first inventors.
- The application or each of the applications, particulars of which are given in Paragraph-8, was the first application in convention country in respect of our inventions.
- We claim the priority from the above mentioned application filed in convention country and state that no application for protection in respect of the invention had been made in a convention country before that date by us or by any person from which we derive the title.
- Our application in India is based on international application under Patent Cooperation Treaty (PCT) as mentioned in Paragraph-9.
- The application is divided out of our applications particulars of which is given in Paragraph-10 and pray that this application may be treated as deemed to have been filed on DD/MM/YYYY under section 16oftheAct.
- The said invention is an improvement in or modification of the invention particulars of whicharegiveninParagraph-11.

13. FOLLOWING ARE THE ATTACHMENTS WITH THE APPLICATION

(a) Form 2

Item	Details	Fee	Remarks
Complete specification	No. of pages: 09		
No. of Claims	No. of claims and 08 No. of pages: 01		
Abstract	No. of pages 01		
No. of Drawings	No. of drawings and 05 No. of pages: 05		

PRINCIPAL
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In case of a complete specification, if the applicant desires to adopt the drawings filed with his provisional specification as the drawings or part of the drawings for the complete specification underrule13(4),the number of such pages filed with the provisional specification are Required to be mentioned here.

(b) Complete specification (in conformation with the international application) / as amended before the International Preliminary Examination Authority (IPEA), as applicable (2copies).

(c) Sequence listing in electronic form

(d) Drawings (in conformation with the international application) / as amended before the International Preliminary Examination Authority (IPEA), as applicable (2copies).

(e) Priority document(s) or a request to retrieve the priority document(s) from DAS (Digital Access Service) if the applicant had already requested the office of first filing to make the priority document(s) available to DAS.

(f) Translation of priority document /Specification /International Search Report/ International Preliminary Report on Patentability.

(g) Statement and Undertaking on Form 3

(h) Declaration of Inventorship on Form 5

(i) Power of Authority

(j)

Total fee ₹4500.00 in ~~Cash~~/ ~~Banker's Cheque~~ /Bank Draft bearing No. 958193 **Date** 07/03/2024 **on** Canara **Bank.**

We hereby declare that to the best of our knowledge, information and belief the fact and matters stated herein are correct and we request that a patent may be granted to us for the said invention.

Dated this 28 day of 02 20.24

Signature:

Name:

PRINCIPAL
JKK MUNIRAJAH COLLEGE OF TECHNOLOGY
T.N. PALAYAM (Po)-638 506.
GOBI (Tk), ERODE (Dt).

To,
The Controller of Patents
The Patent Office, Chennai.

Note:-

* Repeat boxes in case of more than one entry.
* To be signed by the applicant(s) or by authorized registered patent agent otherwise where mentioned.
* Tick (✔)/cross(x) whichever is applicable/not applicable in declaration in paragraph-12:
* Name of the inventor and applicant should be given in full, family name in the beginning.
* Strike out the portion which is/are not applicable.
* For fee : See First Schedule ";

PRINCIPAL
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Name of the Applicant: J.K.K MUNIRAJAH COLLEGE OF TECHNOLOGY

"FORM 2"

THE PATENTS ACT, 1970

(39 of 1970)

&

The Patents Rules, 2003

COMPLETE SPECIFICATION (see section 10)

1. TITLE OF THE INVENTION

PROCEDURE FOR REDUCE RESIDUAL STRESS IN LOW CARBON STEEL JOINTS BY ROTATING ARC WELDING METHOD

2. NAME OF THE APPLICANT

J.K.K MUNIRAJAH COLLEGE OF TECHNOLOGY

ADDRESS FOR COMMUNICATION

The Principal

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&

NATIONALITY

Indian

3. PREAMBLE OF THE DESCRIPTION

The following specification particularly describes the method for reduce residual stress in low carbon steel joints by rotating arc welding technology.

4. FIELD OF INVENTION

The present invention relates to a method for reducing residual stress in welded joints through rotating arc welding technology. More specifically, it is connected with to minimizing internal residual stress in low carbon steel joints by employing new, novel rotating arc welding parameters.

5. BACKGROUND OF THE INVENTION

Residual stresses in welded joints have long been a concern in the field of structural engineering. These stresses can lead to premature failure of welded structures, compromising their integrity and safety. Low carbon steels, are widely used material in various industries, is particularly susceptible to residual stresses during arc welding processes. This background of invention aims to explore and analyze existing research on methods to mitigate residual stress in low carbon steel joints, focusing on the arc welding technique.

The formation of residual stress in welded joints is a complex phenomenon influenced by factors such as welding parameters, material properties, and cooling rates. Researchers (Smith et al., 2018) have investigated the mechanics of residual stress formation during arc welding and emphasized the significance of comprehending the underlying mechanisms for effective stress reduction strategies.

Numerous studies (Jones & Brown, 2016) have investigated the impact of welding parameters, including heat input, welding speed, and preheating, on residual stress in carbon steel joints. Optimizing these parameters can potentially minimize the magnitude of residual stresses by controlling the thermal cycles and resulting phase transformations during welding.

Post-weld heat treatment has been a widely explored method for stress relief in welded joints (Wang & Zhang, 2017). Researchers have examined the effectiveness of various PWHT techniques in mitigating residual stress in carbon steel welds, considering factors such as temperature, duration, and cooling rates.

Emerging welding technologies, such as pulsed arc welding and laser welding, has shown promise in reducing residual stresses (Li et al., 2019). These techniques offer precise control over heat input and can potentially minimize the thermal distortion and stress concentration associated with traditional arc welding methods.

The choice of carbon steel grade and alloy composition plays a crucial role in determining the susceptibility to residual stress (Chen et al., 2020). Researchers have explored the influence of material properties on residual stress formation, providing

insights into selecting alloys that exhibit improved weld ability and reduced stress.

Computational methods, such as finite element analysis (FEA), have become essential tools for predicting and understanding residual stress distribution in welded joints (Guo & Wang, 2018). By employing numerical simulations, researchers can optimize welding parameters and assess the efficacy of stress reduction strategies before practical implementation.

Real-time monitoring and control of the welding process have been proposed as effective measures to reduce residual stresses (Xu et al., 2021). Advanced sensing technologies and adaptive control systems can dynamically adjust welding parameters to minimize thermal gradients and consequently lower residual stress.

Examining case studies and practical applications provides valuable insights into the real-world effectiveness of residual stress reduction methods (Johnson & White, 2019). Assessing the long-term performance of welded structures under varying environmental conditions enhances the understanding of the sustainability of implemented solutions.

Despite significant progress, challenges remain in achieving comprehensive residual stress control in carbon steel joints. Future research directions should focus on integrating multiple strategies, considering the holistic interaction of factors influencing residual stress. Additionally, investigating the environmental and economic implications of these methods will contribute to the broader acceptance and implementation of stress reduction techniques in industrial settings.

This background of the invention underscores the multifaceted nature of residual stress in carbon steel joints welded using arc welding methods. Researchers have made substantial progress in understanding the influencing factors and developing strategies to mitigate these stresses. However, further interdisciplinary research and practical applications are necessary to address the challenges and implement effective solutions for reducing residual stress in carbon steel joints. The integration of advanced welding technologies, material science insights, and innovative control strategies holds the potential to significantly enhance the reliability and durability of welded structures in various industrial applications.

6. SUMMARY OF THE INVENTION

The procedure for reducing residual stress in low carbon steel joints through the Rotating Arc Welding (RAW) method represents a significant innovation in welding technology. Residual stress in welded joints can lead to structural weaknesses and reduced material integrity, making it a critical concern in various industries. The RAW method introduces a novel approach by employing a rotating arc during the welding process, which contributes to more uniform heat distribution and controlled cooling rates. Unlike traditional welding methods, the RAW procedure addresses the issue of residual stress systematically, focusing on the dynamic control of the welding parameters. The rotation of the arc facilitates a more balanced heat input, preventing localized overheating and subsequent cooling-induced stress. By carefully managing the welding conditions, this method aims to enhance the structural integrity of low carbon steel joints, ultimately leading to improved performance and longevity in welded components. The innovation presented in this procedure showcases a promising advancement in welding technology, offering potential benefits across various industries where low carbon steel structures are prevalent.

The main objectives of this invention is identify and establish the ideal welding parameters, such as arc voltage, rotating arc diameter, rotating arc speed, and arc current, to minimize residual stress during the rotating arc welding process.

Second objective is evaluate and recommend specific low carbon steel alloys and pre-treatment methods to enhance the effectiveness of the rotating arc welding procedure in reducing residual stress.

To investigate various joint designs and configurations with the aim of identifying options less susceptible to residual stress, and to offer recommendations for optimizing the geometry of the joints

To perform Finite element analysis (FEA) simulations to model and predict the distribution of residual stress in low carbon steel joints, enabling the optimization of welding parameters and procedures.

To analyze the micro structural changes in the welded region to understand their correlation with residual stress and propose methods to control and minimize these changes.

To establish Non-Destructive Testing (NDT) protocols to assess the effectiveness of the rotating arc welding method in reducing residual stress, ensuring that the joints meet specified quality standards.

7. BRIEF DESCRIPTION OF DRAWING

The manner, in which planned inventions work is given a more particular description below, briefly summarized above, by reference to the components.

Figure 101 demonstrate the configuration of both conventional GMAW and RAW welded joints

Figure 102 illustrate numerically simulated residual stress distribution in conventional GMAW joint

Figure 103 illustrate the numerically simulated residual stress distribution in RAW joint.

Figure 104 illustrate the numerically simulated and experimentally measured residual stress distribution in welded joints.

Figure 105 illustrate Optical Microstructures of weld-metal regions.

8. DETAILED DESCRIPTION OF INVENTION

Referring to **Figure 101 (a)** shows the "V" groove butt joint configuration for the conventional-GMAW process and the square butt joint configuration prepared for RAW process to fabricate the joints (shown in **Figure 101 (b)**). The joints made with conventional arc welding processes are referred as C-GMAW and the joints made with rotational arc welding processes were noted as RAW. The direction of welding was normal to the rolling direction. All necessary precautions were taken to control joint distortion. The joints were made after holding the plates in welding fixtures. For welding of steel plates, a mixture of argon (98.2 %) and CO_2 (1.8 %) provides inexpensive and accurate as well as clean weld without spatter for GMAW process.

For GMAW joints, 1.2 mm diameter filler wire was used for both root pass and filler passes. The preheat and inter pass temperatures (156 °C and 214 °C) were measured and maintained using digital welding and metalworking thermometer with a K-Type surface thermocouple during the welding of joints. In total, six passes were deposited for C-GMAW joints and three passes were deposited for RAW joints.

Table 1.1 Optimized welding parameters used to fabricate the joints

Parameters	Unit	C-GMAW						RAW		
Number of Pass		1	2	3	4	5	6	1	2	3
Welding current	A	133	135	134	136	135	133	130	135	132
Arc voltage	V	25	25	25	25	25	25	25	25	25
Welding speed	mm/min	250	250	250	250	250	250	250	250	250
Wire feed rate	mm/min	165	165	165	165	160	160	160	160	160
Filler wire diameter	mm	1.2						1.2		
Arc rotational speed	rpm	-						1600		
Arc rotating diameter	mm	-						3		
Root gap	mm	3						8		
CTWD	mm	15						20		
Gas flow rate	lit/min	18						15		
Heat input	kJ/mm	0.80	0.81	0.80	0.81	0.81	0.80	0.78	0.81	0.79

CTWD* - Contact Tip to Work Distance

Residual stress is measured experimentally using X-Ray Diffraction and numerically using ANSYS software and is presented in **Figures 102, 103 and 104.** The longitudinal stress components were measured. The slight differences between numerical and experimental residual stress were due to variations in heat input and surface inspection volume in both C-GMAW and RAW joints. Tensile residual stress was present up to 20 mm on either side of the weldment. While comparing experimental and numerical residual stress, experimentally measured residual stress was lower than the numerical residual stress.

The M shape in the longitudinal direction of residual stress is due to phase transformation in the weld metal and HAZ. The phase changes caused volumetric changes in the weld metal and interface. In the transverse direction, the molten weld metal undergoes shrinkage and phase change (austenite + delta ferrite) in the weld metal, resulting in higher residual stress.

The base metal microstructure mainly consists of dark pearlite strips mixed with white ferrite matrix. The ferrite grains appear slightly elongated. **Figure 105** display the OM

images of various regions of both the welded joints. The weld metal (WM) region of C-GMAW joint contains coarse pearlite (CP) mixed with polygonal ferrite (PF) matrix **(Figure 105 a, b)**. The WM region of RAW joint reveals the high-volume fraction of acicular ferrite (AF) and PF matrix mixed fine lamellar pearlite (FLP) microstructure **(Figure 105 d-f)**.

The microstructure of the WM region of the C-GMAW joint contains coarse polygonal ferrite (PF) and a small amount of lath pearlite (LP). The RAW joint contains a FLP phase in the AF matrix. The FLP structure has higher hardness compared to coarse PF and pearlite phases (Seyed et al. 2015). The formation of these microstructures is because of the different cooling rates of weld metal. The RAW process provides very low heat input (2.38 kJ/mm) compared to the C-GMAW process (4.83 kJ/mm) and the particular welding parameters are listed table 1.1. The difference heat input affects the residual stress of the weld joint. The higher heat input leads to grain growth in the weld pool (Yong et al. 2013) also increase residual stress of the weld joint. The heat input is lower, there is no time for grain growth, so the grains solidify faster and it reduce residual stress of the RAW joint. The heat input is higher in the C-GMAW process compared to the RAW process. Because of this, the C-GMAW joint showed higher residual stress in the weld metal.

9. CLAIMS

We claim,

1. A welding process system comprising:

   a. Two joint configurations, including a "V" groove butt joint for conventional Gas Metal Arc Welding (C-GMAW) and a square butt joint for Rotational Arc Welding (RAW), as illustrated in Figure 101 (a) and (b).

   b. Welding performed with a mixture of 98.2% argon and 1.8% CO_2 for GMAW joints, utilizing a 1.2 mm diameter filler wire for both root pass and filler passes.

2. A method for controlling welding parameters, comprising:

   a. Welding current, Arc voltage, Welding speed, Wire feed rate ,Filler wire diameter, Arc rotational speed, Arc rotating diameter, Root gap and Utilizing a digital welding and metalworking thermometer with a K-Type surface thermocouple to maintain preheat and inter pass temperatures at 156 °C and 228 °C during welding.

   b. Employing the welding process parameters as listed in Table 1.1.

3. A welding joint assembly process comprising:

   a. Six passes for C-GMAW joints and three passes for RAW joints for completion.

   b. Measurement of residual stress in weldments both experimentally using X-Ray Diffraction and numerically using ANSYS software.

   c. Presentation of results focusing on longitudinal stress components in Figures 102, 103, and 104.

4. A system for residual stress analysis in welded components, comprising:

   a. Observation of tensile residual stress up to 20 mm on either side of the weldment.

   b. Consistent experimental measurements lower than numerical predictions.

5. An apparatus for microstructure analysis in welded joints, comprising:

   a. Differences in microstructure between C-GMAW and RAW joints.

   b. Higher-volume fractions of acicular ferrite (AF) and fine lamellar pearlite (FLP) in the weld metal region of RAW joints attributed to lower residual stress compared to C-GMAW.

Dated this day of 05/3/24......

Signature of the applicant

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10. ABSTRACT

This innovation presents a comprehensive procedure for reducing residual stress in low carbon steel joints through the application of the rotating arc welding (RAW) method. Residual stresses in welded joints can significantly affect the structural integrity and performance of materials, especially in carbon steel applications. The RAW method, characterized by its dynamic and controlled approach, is employed as a strategic technique to mitigate residual stresses during the welding process. The work investigates the effectiveness of this procedure through experimental analyses and provides insights into the underlying mechanisms contributing to stress reduction. The proposed methodology not only addresses the practical challenges associated with residual stress in carbon steel joints but also offers a valuable contribution to the optimization of welding techniques for enhanced structural reliability. The findings of this research have implications for diverse industrial applications where carbon steel is utilized, emphasizing the importance of tailored welding methods to minimize residual stress and improve overall material performance.

Dated this day of 08/21/24....

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Name of the Applicant: J.K.K MUNIRAJAH COLLEGE OF TECHNOLOGY

Total No. of Sheets: 05
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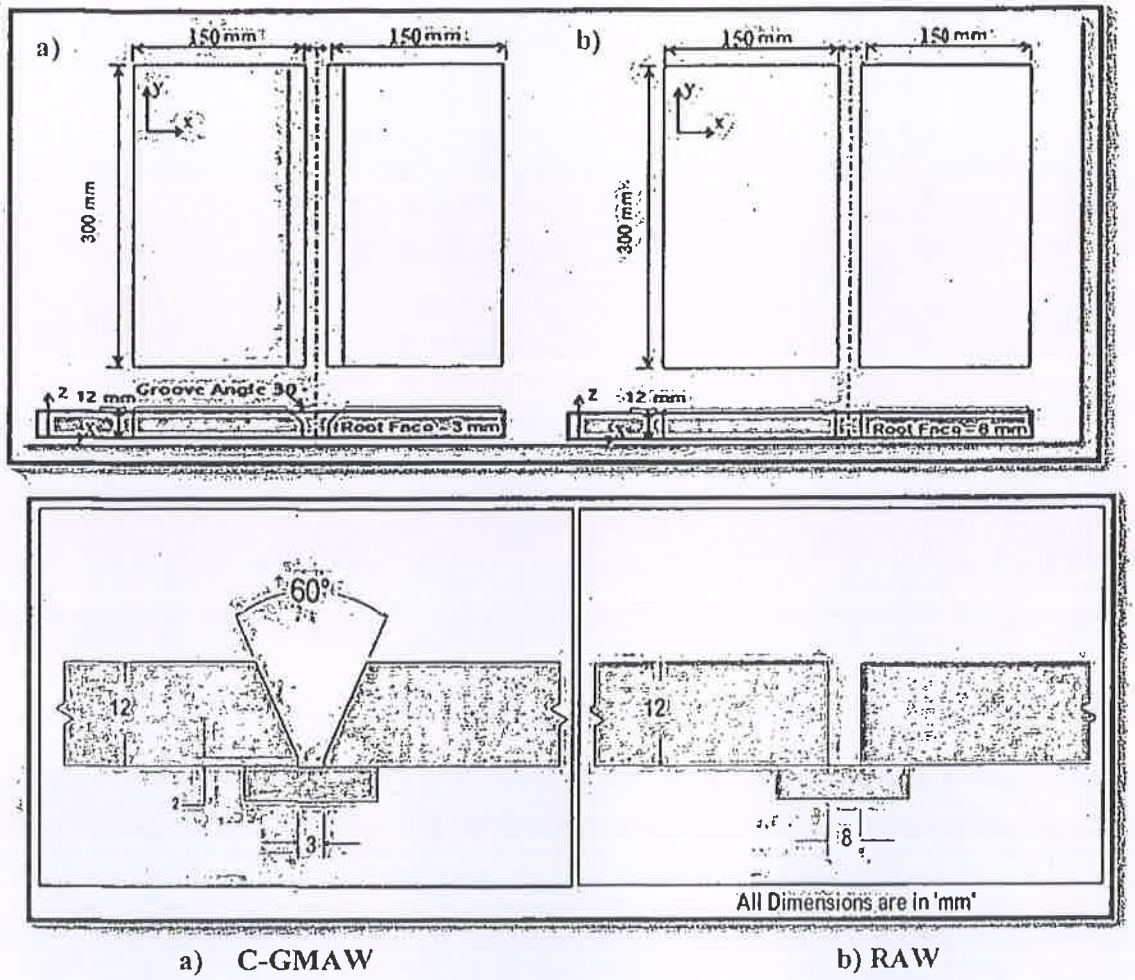

a) C-GMAW b) RAW

Figure 101 Configuration of welded joints

Dated this day of 08.2.24

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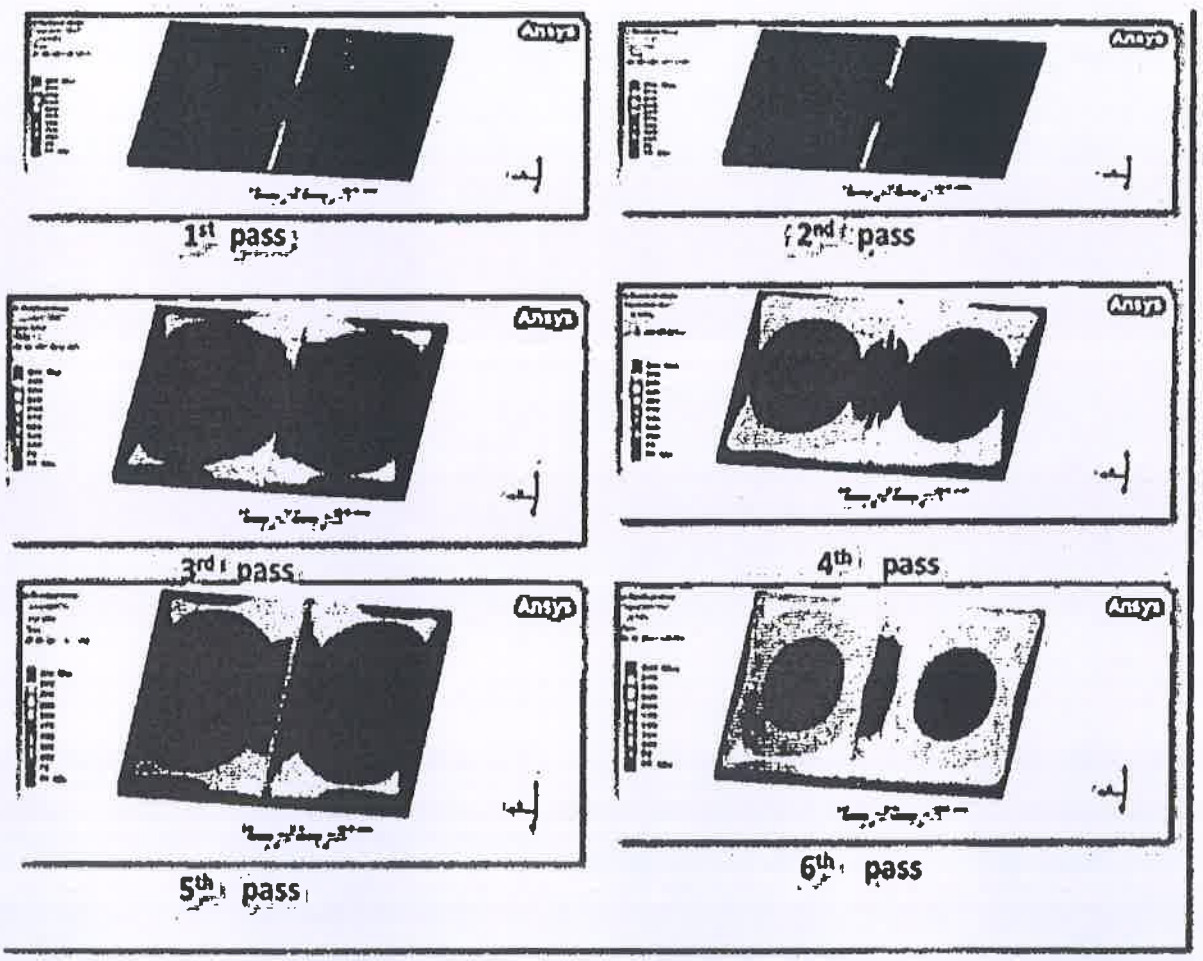

Figure 102 The numerically simulated residual stress distribution in C-GMAW joint

Dated this day of 08/2/24

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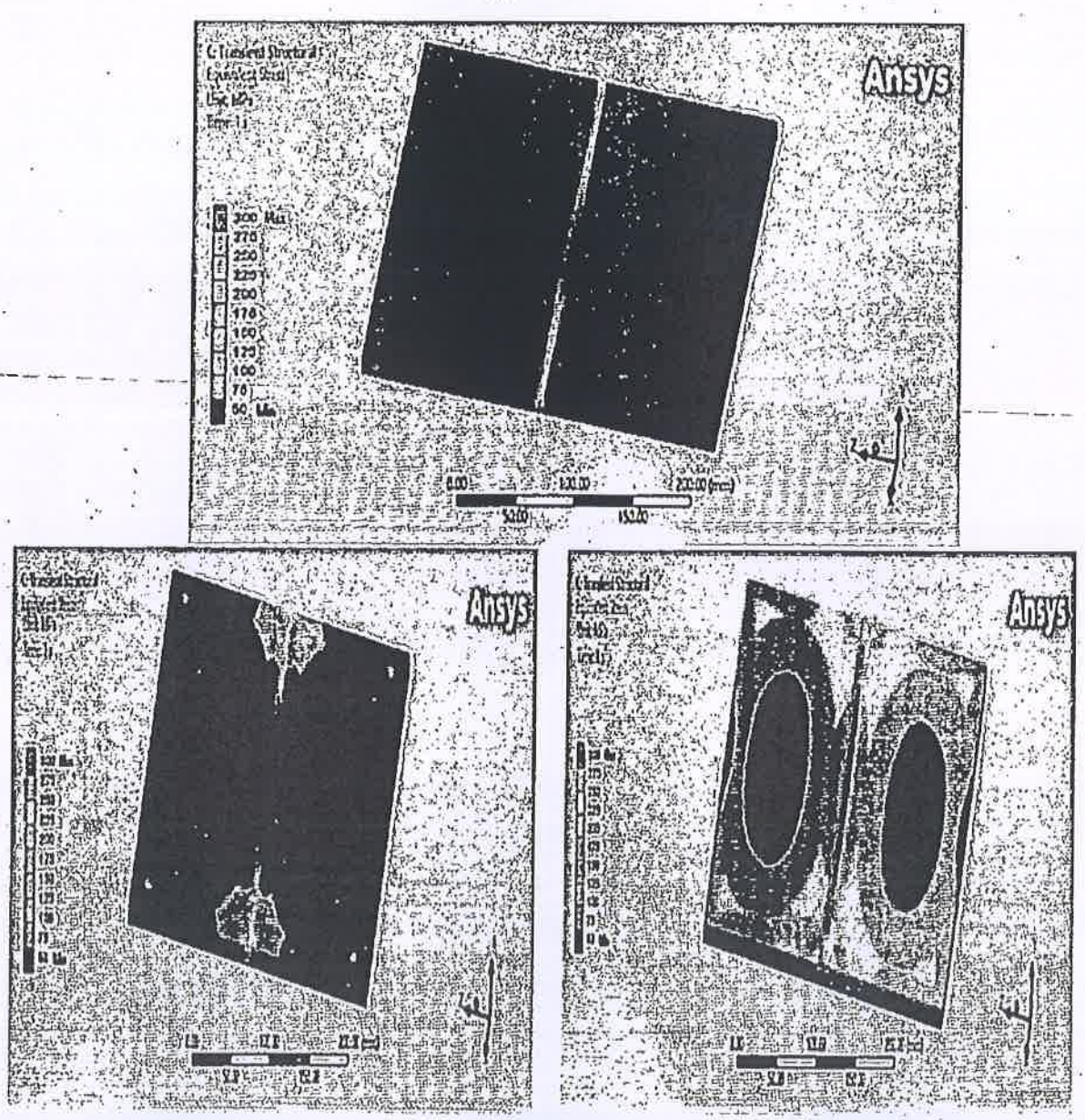

Figure 103 The numerically simulated residual stress distribution in RAW joint

Dated this day of 2/8/24

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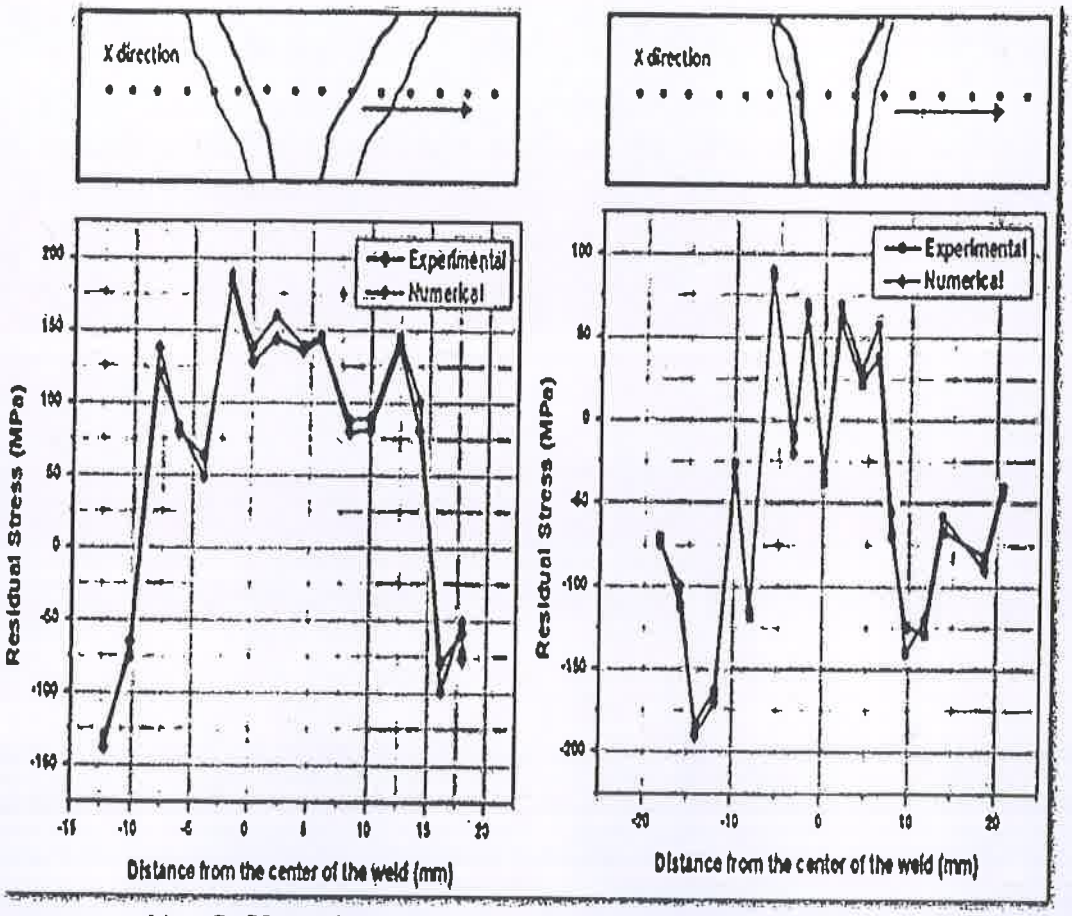

b) C-GMAW b) RAW

FIGURE 104 The numerically simulated and experimentally measured residual stress distribution in welded joints

Dated this day of : 08/2024

Signature of the Applicant

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Name of the Applicant: J.K.K MUNIRAJAH COLLEGE OF TECHNOLOGY

Total No. of Sheets: 05
Sheet No: 5

C-GMAW Joint Weld Middle Region

RAW Joint Weld Middle Region

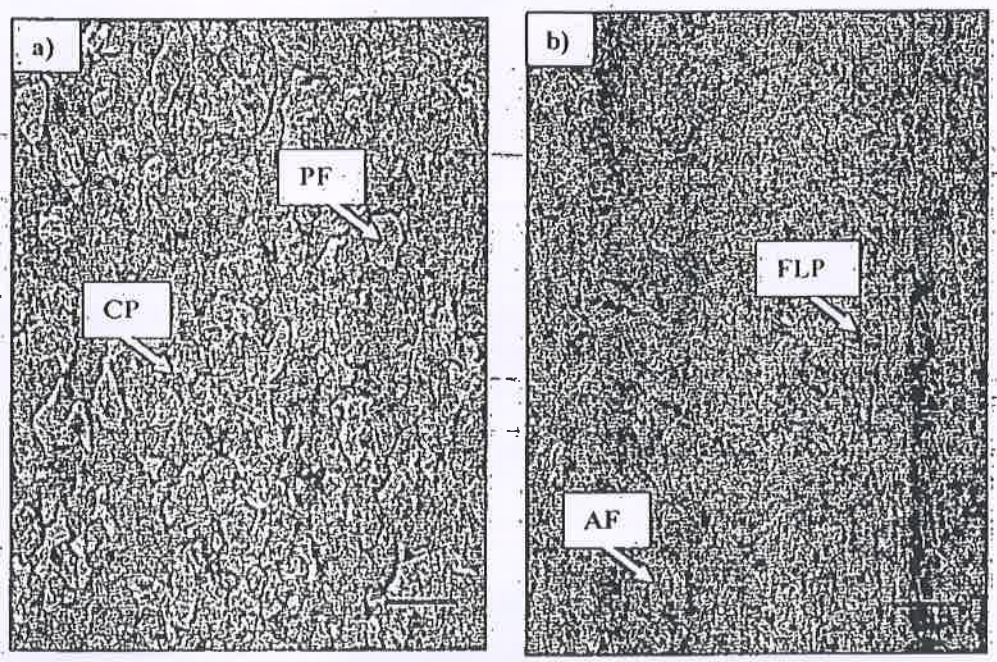

Figure 105 Optical Microstructures of weld metal regions

(PF-Polygonal Ferrite, FLP-Fine Laminar Pearlite, AF- Acicular Ferrite, CP-Coarse Pearlite)

Dated this day of ...08/04/24....

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710058466

FORM 3

THE PATENTS ACT,

1970 (39 of 1970)

and

THE PATENTS RULES,
2003

STATEMENT AND UNDERTAKING UNDER SECTION 8

(See section 8; Rule 12)

1. Name of the applicant(s).	We J.K.K.MUNIRAJAH COLLEGE OF TECHNOLOGY T.N.Palayam, Gobi,Erode-638506 hereby declare:
2. Name, address and nationality of the joint applicant.	(i) that We have not made any application for the same/substantially the same invention outside India Or ~~(ii) that I/We who have made this application No.......dated ....alone/jointly with ...., made for the same/ substantially same invention, application(s) for patent in the other countries, the particulars of which are given below:~~

~~Name of the country~~	~~Date of application~~	~~Application No.~~	~~Status of the application~~	~~Date of publication~~	~~Date of grant~~

3. Name and address of the assignee	~~(iii) that the rights in the application(s) has/have been assigned to..~~

PRINCIPAL
JKK MUNIRAJAH COLLEGE OF TECHNOLOGY
T.N. PALAYAM (Po)-638 506.
GOBI (Tk), ERODE (Dt).

PATENT OFFICE CHENNAI 12/03/2024 13:57

	~~.....~~ ~~..... that I/We undertake that upto the date of grant of the patent by the Controller, I/We would keep him informed in writing the details regarding corresponding applications for patents filed outside India within six months from the date of filing of such application.~~ ~~Dated this.....day of.....20.....~~
4. To be signed by the applicant or his authorized registered patent agent.	Signature. ..... PRINCIPAL JKK MUNIRAJAH COLLEGE OF TECHNOLOGY T.N. PALAYAM (Po)-638 506. GOBI (Tk), ERODE (Dt).
5. Name of the natural person who has signed.	
	To The Controller of Patents, The Patent Office, Chennai.
Note.- Strike out whichever is not applicable;	

PRINCIPAL
JKK MUNIRAJAH COLLEGE
OF TECHNOLOGY
T.N. PALAYAM (Po)-638 506.
GOBI (Tk), ERODE (Dt).

FORM 5
THE PATENTS ACT, 1970
(39 of 1970)
&
The Patents Rules, 2003
DECLARATION AS TO INVENTORSHIP
(See section 10(6) and rule 13(6)]

1. NAME OF APPLICANT	J.K.K.MUNIRAJAH COLLEGE OF TECHNOLOGY

hereby declare that the true and first inventors of the invention disclosed In the complete specification filed in pursuance of my /our application numbered dated are

2. INVENTORS

(a) NAME

1. Dr.N.Sankar
2. Dr.K.Sridharan
3. Mr.V.Magesh
4. Mr.S.Ganeshkumar
5. Mr.V.P.Arulmurugan.

(b) NATIONALITY : INDIAN

(c) ADDRESS

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710058467

Dated this day of 28/02/2024

Signature: -

Name of the signatory

1. Dr.N.Sankar
2. Dr.K.Sridharan
3. Mr.V.Magesh
4. Mr.S.Ganesh kumar
5. Mr.V.P.Arulmurugan

PRINCIPAL
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OF TECHNOLOGY
T.N. PALAYAM (Po)-638 506.
GOBI (Tk), ERODE (Dt).

~~3. DECLARATION TO BE GIVEN WHEN THE APPLICATION IN INDIA IS FILED BY THE P APPLICANT (5) IN THE CONVENTION COUNTRY:-~~

~~We the applicant(s) in the convention country hereby declare that our right to apply for a patent in India is by way of assignment from the true and first inventor(s).~~

Dated this day of 20240208

Signature: -
Name of the signatory

~~4. STATEMENT (to be signed by the additional inventor(s) not mentioned in the application form) We assent to the invention referred to in the above declaration, being included in the complete specification filed in pursuance of the stated application.~~

Dated this day Of 20

Signature of the additional inventor(s): -

Name: -
To,
The Controller of Patent
The Patent Office,
Chennai.
Note

- Repeat boxes In case of more than one entry.
- To be signed by the applicant(s) or by authorized registered patent agent otherwise where mentioned.
- Name of the inventor and applicant should be given In full, family name in the beginning
- Complete address of the inventor should be given stating the postal Index no./code, state and country. '
- Strike out the column which Is/ are not applicable.

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JKK MUNIRAJAH COLLEGE
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GOBI (Tk), ERODE (Dt).

CBK-NO => 16266
DATE => 11-03-2024
AMOUNT => 2750/- [signature] 11/03/24

FORM 9

THE PATENTS ACT, 1970
(39 of 1970)
&
The Patents Rules, 2003
REQUEST FOR PUBLICATION

[See section 11A(2); rule 24A]

710058468

1. Name, address and nationality of the applicant(s).

I/We[1] J.K.K. MUNIRAJAH COLLEGE OF TECHNOLOGY T.N. PALAYAM

2. To be signed by the applicant or his authorized registered patent agent.

hereby request for early publication of my/our application for Patent No.................... dated ....under section 11A(2) of the Act.

Dated this 08 day of 02 2024

Signature [signature]

PRINCIPAL
JKK MUNIRAJAH COLLEGE OF TECHNOLOGY
T.N. PALAYAM (Po)-638 506.
GOBI (Tk), ERODE (Dt).

3. Name of the natural person who has signed.

(...)

To
The Controller of Patents,
The Patent Office,
At Chennai

Note: - For fee : See First Schedule

[signature]
PRINCIPAL
JKK MUNIRAJAH COLLEGE OF TECHNOLOGY
T.N. PALAYAM (Po)-638 506.
GOBI (Tk), ERODE (Dt).

PATENT OFFICE CHENNAI 12/03/2024 13:57

710058469

"FORM 28"
THE PATENTS ACT,
1970
(39 of 1970)
AND
THE PATENTS RULES,
2003
TO BE SUBMITTED BY AS MALLENTITY/START UP/EDUCATIONAL INSTITUTION
[See rules 2 (fa), 2(fb), 2(ca) and 7]

1	Insert name, address and nationality.	We J.K.K.MUNIRAJAH COLLEGE OF TECHNOLOGY Applicant in respect of the patent application no. ..... Hereby declare that we are a small entity in accordance with rule 2(fa) or a startup in accordance with rule 2(fb) or an educational institution in accordance with rule 2 (ca) and submit the following document(s) as proof:
2	Documents to be submitted	
	i. For claiming the status of a small entity:	
	A. For an Indian applicant: Evidence of registration under the Micro, Small and Medium Enterprises Act, 2006 (27 of 2006).	
	B. In case of a foreign entity : Any other document.	
	ii. For claiming the status of a startup	
	A. For an Indian applicant: Any document as evidence of eligibility, as defined in rule 2 (fb).	
	B. In case of a foreign entity : Any other document.	
	iii. For claiming the status of an educational institution	
	A. For an Indian applicant : Any document as evidence of eligibility	
	B. In case of a foreign educational institution : Any other document.	
3	To be signed by the applicant	The information provided here in is correct to the best of my knowledge and belief. Dated this...08...day of...02.....2024
4	Name of the natural person who has signed.	Signature..... PRINCIPAL JKK MUNIRAJAH COLLEGE OF TECHNOLOGY T.N. PALAYAM (Po)-638 506. GOBI (Tk), ERODE (Dt).

PRINCIPAL
JKK MUNIRAJAH COLLEGE
OF TECHNOLOGY
T.N. PALAYAM (Po)-638 506.
GOBI (Tk), ERODE (Dt).

	Designation and official seal, if any, of the person who has signed.	(Name). Dr. K. Sridharan (Designation). Principal To The Controller of Patents, The Patent Office, Chennai.

PRINCIPAL
JKK MUNIRAJAH COLLEGE
OF TECHNOLOGY
T.N. PALAYAM (Po)-638 506.
GOBI (Tk), ERODE (Dt).

All India Council for Technical Education

(A Statutory body under Ministry of Education, Govt. of India)

Nelson Mandela Marg,Vasant Kunj, New Delhi-110070 Website: www.aicte-india.org

APPROVAL PROCESS 2023-24

Extension of Approval (EoA)

F.No. Southern/1-36496143221/2023/EOA

Date: 02-Jun-2023

To,

The Principal Secretary
(Higher Education) Govt. of Tamil Nadu,
N. K. M. Bld. 6th Floor Secretariat,
Chennai-600009

Sub: Extension of Approval for the Academic Year 2023-24

Ref: Online application of the Institution submitted for Extension of Approval for the Academic Year 2023-24

Sir/Madam,

In terms of the provisions under the All India Council for Technical Education (Grant of Approvals for Technical Education) Regulations, 2020 notified on 4th February 2020 and amended on 24th February 2021 and norms standards, procedures and conditions prescribed by the Council from time to time, I am directed to convey the approval to:

Permanent Id	1-1002585	Application Id	1-36496143221
Name of the Institution	JKK MUNIRAJAH COLLEGE OF TECHNOLOGY	Name of the Society/Trust	ANNAI JKK SAMPOORANIAMMAL CHARITABLE TRUST
Institution Address	377/1A,PUNJAI THURAYAMPALAYAM, THOOKKANICKENPALAYAM(POST) , THOOKKANICKENPALAYAM, GOBI (TK) ERODE, ERODE, ERODE, Tamil Nadu, 638506	Society/Trust Address	,KOMARAPALAYAM,NAMAKKAL,Tamil Nadu,638183
Institution Type	Private-Self Financing	Region	Southern
Year of Establishment	2008		

To conduct following Courses with the Intake Indicated below for the Academic Year 2023-24

Level	Program	Course	Affiliating Body (University /Body)	Intake Approved for 2022-23	Intake Approved for 2023-24	NRI Approval Status	FN/Gulf quota/OCI/ Approval Status
UNDER GRADUATE	ENGINEERING AND TECHNOLOGY	ARTIFICIAL INTELLIGENCE (AI) AND DATA SCIENCE	Anna University, Chennai	0	60##	NA	NA
UNDER GRADUATE	ENGINEERING AND TECHNOLOGY	AUTOMOBILE ENGINEERING	Anna University, Chennai	30	30	NA	NA

PRINCIPAL
JKK MUNIRAJAH COLLEGE OF TECHNOLOGY
T.N. PALAYAM (Po)-638 506.
GOBI (Tk), ERODE (Dt).

PATENT OFFICE CHENNAI 12/03/2024 13

Level	Program	Course	Affiliating Body (University /Body)	Intake Approved for 2022-23	Intake Approved for 2023-24	NRI Approval Status	FN/ Gulf quota/OCI/ Approval Status
POST GRADUATE	ENGINEERING AND TECHNOLOGY	APPLIED ELECTRONICS	Anna University, Chennai	9	9	NA	NA
POST GRADUATE	ENGINEERING AND TECHNOLOGY	MANUFACTURING ENGINEERING	Anna University, Chennai	18	18	NA	NA

Approved New Course(s)

It is mandatory to comply with all the essential requirements as given in APH 2023-24 (Appendix 6)

Important Instructions

1. The State Government/ UT/ Directorate of Technical Education/ Directorate of Medical Education shall ensure that 10% of reservation for Economically Weaker Section (EWS) as per the reservation policy for admission, operational from the Academic year 2019-20 is implemented without affecting the reservation percentages of SC/ ST/ OBC(NCL) / General. However, this would not be applicable in the case of Minority Institutions referred to the Clause (1) of Article 30 of Constitution of India. Such Institution shall be permitted to increase in annual permitted strength over a maximum period of two years.

2. The Institution offering courses earlier in the Regular Shift, First Shift, Second Shift/Part Time are now amalgamated as total intake and shall have to fulfil all facilities such as Infrastructure, Faculty and other requirements as per the norms specified in the Approval Process Handbook 2023-24 for the Total Approved Intake. Further, the Institutions Deemed to be Universities/ Institutions having Accreditation/ Autonomy status shall have to maintain the Faculty: Student ratio as specified in the Approval Process Handbook.

3. Strict compliance of Anti-Ragging Regulation, Establishment of Committee for SC/ ST, Establishment of Internal Committee (IC), Establishment of Online Grievance Redressal Mechanism, Barrier Free Built Environment for disabled and elderly persons, Fire and Safety Certificate should be maintained as per the provisions made in Approval Process Handbook and AICTE Regulation notified from time to time.

4. In case of any differences in content in this Computer generated Extension of Approval Letter, the content/information as approved by the Executive Council / General Council as available on the record of AICTE shall be final and binding.

5. As per the AICTE Notification dated 29.01.2014 and amended thereto, it shall be mandatory for each Technical Education Institution, University Department and Institution Deemed to be University Imparting Technical Education to get accreditation (NBA) for at least 60% of the eligible courses in the next ONE (1) Years' time, otherwise EoA for the subsequent Academic Year (A.Y. 2024-25) shall not be issued by the Council.

6. Deemed to be University: Institutions Deemed to be Universities (Running Technical Education Programmes), it is mandatory to have AICTE approval from the Academic Year 2018-19 in compliance of the Hon'ble Supreme Court Order dated 03-1.1-2017 passed in CA No.17869- 17870 /2017.

PRINCIPAL
JKK MUNIRAJAH COLLEGE
OF TECHNOLOGY
T.N. PALAYAM (Po)-638 506.
GOBI (Tk), ERODE (Dt).

PATENT OFFICE CHENNAI 12/03/2024 13:15

REGISTRAR

ANNA UNIVERSITY

SARDAR PATEL ROAD, CHENNAI - 600 025

Phone : +91 - 44 - 2235 2161
Office : +91 - 44 - 2235 7004
+91 - 44 - 2235 7003
Fax : +91 - 44 - 2235 1956
E-mail : registrar@annauniv.edu

L.r. No. 02/AFFLN/CAI/CBE/AU/2023-2024/7312

Date : 25-07-2023

To

The Principal
J K K Munirajah College of Technology
377/1A, Punjai Thurayampalayam,
Thookkanickenpalayam (Post),
Thookkanickenpalayam, Gobi (Tk), Erode - 638506.

Sir,

Sub : Anna University - Provisional Affiliation for the Existing course(s) / New course(s) / Variation in intake - U.G. / P.G. for the academic year 2023-2024 - granted - Reg:

Ref : 1. Your application for affiliation for the academic year 2023-2024
2. AICTE / COA / DGS Approval for the academic year 2023-2024 - submitted by the college

I am to inform that under the provisions of Section 7.6.1 of the Statutes for Affiliation of Anna University, Chennai, **Provisional Affiliation** for the continuation of the existing course(s) / new course(s) / variation in intake in the existing course(s) is granted for the following U.G / P.G. courses with the sanctioned intake mentioned against each course for the academic year 2023-2024 at **J K K Munirajah College of Technology, 377/1A, Punjai Thurayampalayam, Thookkanickenpalayam (Post), Thookkanickenpalayam, Gobi (Tk), Erode - 638506.**

Sl. No.	Degree	Course(s)	Sanctioned Intake	
			2022-2023	2023-2024
1.	B.E.	Automobile Engineering	30	30
2.	B.E.	Civil Engineering	30	30
3.	B.E.	Computer Science and Engineering	60	60
4.	B.E.	Electrical and Electronics Engineering	60	30
5.	B.E.	Electronics and Communication Engineering	60	60
6.	B.E.	Mechanical Engineering	60	30
7.	B.Tech.	Information Technology	60	60
8.	M.B.A.	Master of Business Administration	60	60
9.	M.C.A.	Master of Computer Applications	30	30
10.	M.E.	Applied Electronics	9	9
11.	M.E.	Computer Science and Engineering	18	18
12.	M.E.	Manufacturing Engineering	18	18
13.	M.E.	Power Electronics and Drives	9	9
14.	B.E.	Computer Science and Engineering (Cyber Security)	60	60
15.	B.Tech.	Artificial Intelligence and Data Science	60	60

PRINCIPAL
JKK MUNIRAJAH COLLEGE
OF TECHNOLOGY
T.N. PALAYAM (PO) 638 506.
GOBI (Tk), ERODE (Dt).

Office of the Controller General of Patents, Designs & Trade Marks
Department for Promotion of Industry and Internal Trade
Ministry of Commerce & Industry,
Government of India

सत्यमेव जयते

INTELLECTUAL PROPERTY INDIA
PATENTS | DESIGNS | TRADE MARKS
GEOGRAPHICAL INDICATIONS

Application Details	
APPLICATION NUMBER	202341071332
APPLICATION TYPE	ORDINARY APPLICATION
DATE OF FILING	19/10/2023
APPLICANT NAME	**1 . A.Anbazhagan** **2 . Mr. Immanuvel** **3 . Dr. M.Sujatha** **4 . Dr. C.Karnan** **5 . M.Prabhakaran** **6 . Dr. C.Saravanan** **7 . Dr. J.Kumaresan** **8 . Dr. P.Meenalochini**
TITLE OF INVENTION	VOICE – ACTIVATED HOME ENERGY MANAGEMENT USING MACHINE LEARNING
FIELD OF INVENTION	ELECTRONICS
E-MAIL (As Per Record)	mail2patentipr@gmail.com
ADDITIONAL-EMAIL (As Per Record)	
E-MAIL (UPDATED Online)	
PRIORITY DATE	
REQUEST FOR EXAMINATION DATE	--
PUBLICATION DATE (U/S 11A)	01/12/2023

PRINCIPAL
JKK MUNIRAJAH COLLEGE
OF TECHNOLOGY
T.N. PALAYAM (Po)-638 506.
GOBI (Tk), ERODE (Dt).

FORM- 5
THE PATENTS ACT, 1970
(39 of 1970)
&
The Patents Rules, 2003
DECLARATION AS TO INVENTORSHIP
[See Section 10(6) and Rule 13(6)]

1. NAME OF THE APPLICANT(S)

I/We A.Anbazhagan et. al., all are citizen of India, Address of one of the Applicant: Associate Professor, Department of Electrical and Electronics Engineering, Sri Sairam Institute of Technology, Chennai-600048.

hereby declare that the true and first inventor(s) of the invention disclosed in the complete specification filed in pursuance of ~~my~~ / our application numbered _____ dated 19-10-2023 ~~is~~/are

2. INVENTOR(S)

(a) NAME	(b) NATIONALITY	(c) ADDRESS
1. A.Anbazhagan	Indian	Associate Professor, Department of Electrical and Electronics Engineering, Sri Sairam Institute of Technology, Chennai-600048.
2. Mr. Immanuvel	Indian	Assistant Professor, Department of EEE, Sethu Institute of Technology, Kariapatti-626115.
3. Dr. M.Sujatha	Indian	Easwari Engineering College, Bharathi Salai, Ramapuram, Chennai-600089.
4. Dr. C.Karnan	Indian	Assistant Professor, Department of Mathematics, K.Ramakrishnan College of Engineering, Samayapuram, Tiruchirappalli-621212.
5. M.Prabhakaran	Indian	Assistant Professor, Department of English, K.Ramakrishnan College of Technology, Samayapuram, Tiruchirappalli-621212.
6. Dr. C.Saravanan	Indian	Professor & Head, Department of EEE, JKK Munirajah College of Technology, Gobi, Erode District.
7. Dr. J.Kumaresan	Indian	Associate Professor, Department of EEE, Nandha College of Technology, Erode-638052.

PRINCIPAL
JKK MUNIRAJAH COLLEGE
OF TECHNOLOGY
T.N. PALAYAM (Po)-638 506.
GOBI (Tk), ERODE (Dt).

8. Dr. P.Meenalochini	Indian	Associate Professor, Department of EEE, Sethu Institute of Technology, Kariapatti-626115.

~~3. DECLARATION TO BE GIVEN WHEN THE APPLICATION IN INDIA IS FILED BY THE APPLICANT(S) IN THE CONVENTION COUNTRY: -~~

N.A.

~~We the applicant(s) in the convention country hereby declare that our right to apply for a patent in India is by way of assignment from the true and first inventor(s).~~

Dated this 19th day of October 2023

A.Anbazhagan et. al.

Applicant(s)

To,
The Controller of Patents
The Patent Office, Chennai

PRINCIPAL
JKK MUNIRAJAH COLLEGE
OF TECHNOLOGY
T.N. PALAYAM (Po)-638 506.
GOBI (Tk), ERODE (Dt).

FORM 1 THE PATENTS ACT 1970 (39 of 1970) and THE PATENTS RULES, 2003 **APPLICATION FOR GRANT OF PATENT** (See section 7, 54 and 135 and sub-rule (1) of rule 20)	(FOR OFFICE USE ONLY)

	Application No.	
	Filing date:	
	Amount of Fee paid:	
	CBR No:	
	Signature:	

1. APPLICANT'S REFERENCE / IDENTIFICATION NO. (AS ALLOTTED BY OFFICE)	

2. TYPE OF APPLICATION [Please tick (✓) at the appropriate category]

Ordinary (✓)		Convention ( )		PCT-NP ( )	
Divisional ( )	Patent of Addition ( )	Divisional ( )	Patent of Addition ( )	Divisional ( )	Patent of Addition ( )

3A. APPLICANT(S)

Name in Full	Nationality	Country of Residence	Address of the Applicant
1. A.Anbazhagan	Indian	India	Associate Professor, Department of Electrical and Electronics Engineering, Sri Sairam Institute of Technology, Chennai-600048.
2. Mr. Immanuvel	Indian	India	Assistant Professor, Department of EEE, Sethu Institute of Technology, Kariapatti-626115.
3. Dr. M.Sujatha	Indian	India	Easwari Engineering College, Bharathi Salai, Ramapuram, Chennai-600089.
4. Dr. C.Karnan	Indian	India	Assistant Professor, Department of Mathematics, K.Ramakrishnan College of Engineering, Samayapuram, Tiruchirappalli-621212.
5. M.Prabhakaran	Indian	India	Assistant Professor, Department of English, K.Ramakrishnan College of Technology, Samayapuram, Tiruchirappalli-621212.

PRINCIPAL
JKK MUNIRAJAH COLLEGE
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T.N. PALAYAM (Po)-638 506.
GOBI (Tk), ERODE (Dt).

6. Dr. C.Saravanan	Indian	India	Professor & Head, Department of EEE, JKK Munirajah College of Technology, Gobi, Erode District.
7. Dr. J.Kumaresan	Indian	India	Associate Professor, Department of EEE, Nandha College of Technology, Erode-638052.
8. Dr. P.Meenalochini	Indian	India	Associate Professor, Department of EEE, Sethu Institute of Technology, Kariapatti-626115.

3B. CATEGORY OF APPLICANT [Please tick (✓) at the appropriate category]

Natural Person (✓)	Other than Natural Person		
	Small Entity ( )	Startup ()	Others ()

4. INVENTOR(S) [Please tick (✓) at the appropriate category]

Are all the inventor(s) same as the applicant(s) named above?	Yes (✓)	No ()

If "No", furnish the details of the inventor(s)

Name in Full	Nationality	Country of Residence	Address of the Inventor
Same as Applicant			

5. TITLE OF THE INVENTION

"Voice – Activated Home Energy Management using Machine Learning"

6. AUTHORISED REGISTERED PATENT AGENT(S)	IN/PA No.	
	Name	
	Mobile No.	
7. ADDRESS FOR SERVICE OF APPLICANT IN INDIA	Name	A.Anbazhagan
	Postal Address	Associate Professor, Department of Electrical and Electronics Engineering, Sri Sairam Institute of Technology, Chennai-600048.
	Telephone No.	
	Mobile No.	9442547353
	Fax No.	
	E-mail ID	mail2patentipr@gmail.com

~~**8. IN CASE OF APPLICATION CLAIMING PRIORITY OF APPLICATION FILED IN CONVENTION COUNTRY, PARTICULARS OF CONVENTION APPLICATION**~~

~~Country~~	~~Application Number~~	~~Filing date~~	~~Name of the applicant~~	~~Title of the invention~~	~~IPC (as classified in the convention country)~~

PRINCIPAL
JKK MUNIRAJAH COLLEGE
OF TECHNOLOGY
T.N. PALAYAM (Po)-638 506.
GOBI (Tk), ERODE (Dt).

9. IN CASE OF PCT NATIONAL PHASE APPLICATION, PARTICULARS OF INTERNATIONAL APPLICATION FILED UNDER PATENT CO-OPERATION TREATY (PCT)	
International application number	International filing date

10. IN CASE OF DIVISIONAL APPLICATION FILED UNDER SECTION 16, PARTICULARS OF ORIGINAL (FIRST) APPLICATION	
Original (first) application No.	Date of filing of original (first) application

11. IN CASE OF PATENT OF ADDITION FILED UNDER SECTION 54, PARTICULARS OF MAIN APPLICATION OR PATENT	
Main application/patent No.	Date of filing of main application

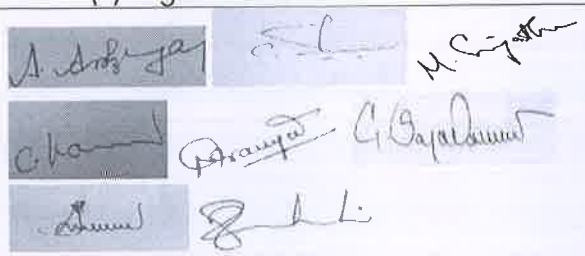
12. DECLARATIONS

(i) Declaration by the inventor(s)

(**In case the applicant is an assignee**: the inventor(s) may sign herein below or the applicant may upload the assignment or enclose the assignment with this application for patent or send the assignment by post/electronic transmission duly authenticated within the prescribed period).

I/We, the above named inventor(s) is/are the true & first inventor(s) for this Invention and declare that the applicant(s) herein is/are my/our assignee or legal representative.

(a) Date 19/10/2023

(b) Name	(c) Signature
1. A.Anbazhagan 2. Mr. Immanuvel 3. Dr. M.Sujatha 4. Dr. C.Karnan 5. M.Prabhakaran 6. Dr. C.Saravanan 7. Dr. J.Kumaresan 8. Dr. P.Meenalochini	

~~**(ii) Declaration by the applicant(s) in the convention country**~~

~~**(In case the applicant in India is different than the applicant in the convention country:** the applicant in the convention country may sign herein below or applicant in India may upload the assignment from the applicant in the convention country or enclose the said assignment with this application for patent or send the assignment by post/electronic transmission duly authenticated within the prescribed period)~~

~~I/We, the applicant(s) in the convention country declare that the applicant(s) herein~~

PRINCIPAL
JKK MUNIRAJAH COLLEGE
OF TECHNOLOGY
T.N. PALAYAM (Po)-638 506.
GOBI (Tk), ERODE (Dt).

~~is/are my/our assignee or legal representative.~~

~~(a) Date~~

~~(b) Signature(s)~~

(c) ~~Name(s) of the signatory~~

(iii) Declaration by the applicant(s)

I/We the applicant(s) hereby declare(s) that: -

- ☐ ~~I am/~~ We are in possession of the above-mentioned invention.
- ☐ The ~~provisional~~/complete specification relating to the invention is filed with this application.
- ☐ ~~The invention as disclosed in the specification uses the biological material from India and the necessary permission from the competent authority shall be submitted by me/us before the grant of patent to me/us.~~
- ☐ There is no lawful ground of objection(s) to the grant of the Patent to me/us.
- ☐ ~~I am~~/we are the true & first inventor(s).
- ☐ ~~I am/we are the assignee or legal representative of true & first inventor(s).~~
- ☐ ~~The application or each of the applications, particulars of which are given in Paragraph-8, was the first application in convention country/countries in respect of my/our invention(s).~~
- ☐ ~~I/We claim the priority from the above mentioned application(s) filed in convention country/countries and state that no application for protection in respect of the invention had been made in a convention country before that date by me/us or by any person from which I/We derive the title.~~
- ☐ ~~My/our application in India is based on international application under Patent Cooperation Treaty (PCT) as mentioned in Paragraph-9.~~
- ☐ ~~The application is divided out of my /our application particulars of which is given inParagraph-10 and pray that this application may be treated as deemed to have been filed on DD/MM/YYYY under section 16 of the Act.~~
- ☐ ~~The said invention is an improvement in or modification of the invention particulars of which are given in Paragraph-11.~~

13. FOLLOWING ARE THE ATTACHMENTS WITH THE APPLICATION

(a) Form 2

Item	Details	Fee	Remarks
Complete/ ~~Provisional~~ specification) #	No. of pages: 18		
No. of Claim(s)	No. of claims: 10 No. of pages: 02		
Abstract	No. of pages: 01		
No. of Drawing(s)	No. of drawings: 01 No. of pages: 01		

PRINCIPAL
JKK MUNIRAJAH COLLEGE
OF TECHNOLOGY
T.N. PALAYAM (Po)-638 506.
GOBI (Tk), ERODE (Dt).

In case of a complete specification, if the applicant desires to adopt the drawings filed with his provisional specification as the drawings or part of the drawings for the complete specification under rule 13(4), the number of such pages filed with the provisional specification are
required to be mentioned here.

(b) Complete specification (in conformation with the international application)/as amended before the International Preliminary Examination Authority (IPEA), as applicable (2 copies).

(c) Sequence listing in electronic form

(d) Drawings (in conformation with the international application)/as amended before the International Preliminary Examination Authority (IPEA), as applicable (2 copies).

(e) Priority document(s) or a request to retrieve the priority document(s) from DAS (Digital Access Service) if the applicant had already requested the office of first filing to make the priority document(s) available to DAS.

(f) Translation of priority document/Specification/International Search Report/International Preliminary Report on Patentability.

(g) Statement and Undertaking on Form 3

(h) Declaration of Inventorship on Form 5

(i)Power of Authority

(j)**Total fee ₹.....in Cash/ Banker's Cheque /Bank Draft bearing No..... Date on ..... Bank.**

I/We hereby declare that to the best of my/our knowledge, information and belief the fact and matters slated herein are correct and I/We request that a patent may be granted to me/us for the said invention.

Dated this 19th day of October 2023

Signature: 

Name: A.Anbazhagan et. al.

To,

The Controller of Patents

The Patent Office, at Chennai

Note: -

* Repeat boxes in case of more than one entry.
* To be signed by the applicant(s) or by authorized registered patent agent otherwise where mentioned.
* Tick ()/cross (x) whichever is applicable/not applicable in declaration in paragraph-12.
* Name of the inventor and applicant should be given in full, family name in the beginning.
* Strike out the portion which is/are not applicable.
* For fee: See First Schedule";

PRINCIPAL
JKK MUNIRAJAH COLLEGE
OF TECHNOLOGY
T.N. PALAYAM (Po)-638 506.
GOBI (Tk), ERODE (Dt).

FORM 9

THE PATENT ACT, 1970
(39 of 1970)
&
THE PATENTS RULES, 2003

REQUEST FOR PUBLICATION

[See section 11A (2) rule 24A]

I/We **A.Anbazhagan,Mr. Immanuvel,Dr. M.Sujatha,Dr. C.Karnan,M.Prabhakaran,Dr. C.Saravanan,Dr. J.Kumaresan,Dr. P.Meenalochini** hereby request for early publication of my/our [Patent Application No.] TEMP/E-1/84277/2023-CHE

Dated **19/10/2023 00:00:00** under section 11A(2) of the Act.

Dated this(Final Payment Date):----------
Signature
Name of the signatory

To,
The Controller of Patents,
The Patent Office,
At Chennai

This form is electronically generated.

PRINCIPAL
JKK MUNIRAJAH COLLEGE
OF TECHNOLOGY
T.N. PALAYAM (Po)-638 506.
GOBI (Tk), ERODE (Dt).

FORM 2

THE PATENTS ACT, 1970

(39 of 1970)

&

The Patent Rules, 2003

COMPLETE SPECIFICATION

(See section 10 and rule 13)

TITLE OF THE INVENTION

"Voice – Activated Home Energy Management using Machine Learning"

We, applicant(s)

NAME	NATIONALITY	ADDRESS
1. A.Anbazhagan	Indian	Associate Professor, Department of Electrical and Electronics Engineering, Sri Sairam Institute of Technology, Chennai-600048.
2. Mr. Immanuvel	Indian	Assistant Professor, Department of EEE, Sethu Institute of Technology, Kariapatti-626115.
3. Dr. M.Sujatha	Indian	Easwari Engineering College, Bharathi Salai, Ramapuram, Chennai-600089.
4. Dr. C.Karnan	Indian	Assistant Professor, Department of Mathematics, K.Ramakrishnan College of Engineering, Samayapuram, Tiruchirappalli-621212.
5. M.Prabhakaran	Indian	Assistant Professor, Department of English, K.Ramakrishnan College of Technology, Samayapuram, Tiruchirappalli-621212.
6. Dr. C.Saravanan	Indian	Professor & Head, Department of

PRINCIPAL
JKK MUNIRAJAH COLLEGE
OF TECHNOLOGY
T.N. PALAYAM (Po)-638 506.
GOBI (Tk), ERODE (Dt).

		EEE, JKK Munirajah College of Technology, Gobi, Erode District.
7. Dr. J.Kumaresan	Indian	Associate Professor, Department of EEE, Nandha College of Technology, Erode-638052.
8. Dr. P.Meenalochini	Indian	Associate Professor, Department of EEE, Sethu Institute of Technology, Kariapatti-626115.

The following specification particularly describes the nature of the invention and the manner in which it is performed:

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GOBI (Tk). ERODE (Dt).

FIELD OF THE INVENTION

The present invention pertains to the field of home energy management systems. More specifically, the invention relates to a system that utilizes voice activation and machine learning algorithms to optimize and control the energy consumption within residential settings. This system integrates voice recognition technology with predictive algorithms to automate, manage, and enhance the energy efficiency and user convenience of various home devices and utilities.

Background of the proposed invention:

The increasing global focus on energy efficiency and sustainability has led to the emergence of sophisticated home energy management systems. With the proliferation of smart devices and homes becoming more interconnected than ever before, there is a heightened need for systems that can manage these devices in a way that not only conserves energy but also enhances user experience. Traditional home energy management systems, while effective to some extent, often rely on manual inputs or pre-set schedules to control devices, making them less adaptive to changing user needs and habits.

Furthermore, the growth of the Internet of Things (IoT) has brought a myriad of smart devices into our homes, from smart thermostats and lights to intelligent appliances. These devices, while providing convenience and automation, also pose a challenge

in terms of managing their energy consumption. The sheer number of devices and the complexity of their operations often mean that homeowners are not utilizing them to their fullest energy-saving potential.

Simultaneously, voice recognition technology has seen significant advancements in recent years. From rudimentary command recognition to understanding complex instructions in natural language, voice-activated systems have become an integral part of many households. They provide an intuitive interface, eliminating the need for manual controls or navigating through complex application interfaces. This convenience, however, had not been fully integrated into the domain of home energy management, leaving a gap in the market for a more user-friendly, voice-controlled energy management solution.

Machine learning, a subset of artificial intelligence, offers a promising avenue for enhancing the capabilities of home energy management. By analyzing past energy consumption patterns, user behaviors, and even external factors like weather forecasts, machine learning algorithms can predict future energy needs and adjust the operations of home devices accordingly. This predictive capability ensures that energy is consumed in the most efficient manner possible, tailoring the operation of devices to the specific needs and habits of the users.

Given the existing challenges and the opportunities presented by the convergence of voice recognition technology and machine learning, there was a clear need for a system that seamlessly integrates these technologies. The goal was to develop a solution that offers homeowners an intuitive way to manage their home's energy consumption while also harnessing the power of predictive analytics to ensure optimal energy usage. Thus, the idea for the Voice-Activated Home Energy Management Using Machine Learning was conceived.

As society became increasingly environmentally conscious, the demand for solutions that could minimize the carbon footprint of households grew exponentially. This shift in mindset not only emphasized the ethical responsibility to conserve energy but also highlighted the potential economic benefits. Reduced energy consumption meant reduced utility bills, presenting a direct financial incentive for homeowners to seek out advanced energy management solutions.

Coupled with the environmental and economic motivations was the overarching theme of convenience. The modern-day homeowner, surrounded by a plethora of smart devices, sought a unified and effortless control system. While individual smart devices came with their respective applications or remote controls, there was an evident disconnect in managing them collectively in an energy-efficient manner. The daily routines, preferences, and habits of each homeowner were unique, and a one-

size-fits-all solution was no longer adequate. There was an increasing desire for a system that could learn and adapt to individual user behaviors, ensuring both comfort and energy efficiency.

The integration of voice recognition was a natural evolution in this trajectory. The success of voice-activated assistants in various spheres of daily life demonstrated the ease and efficiency with which users could communicate their needs. The hands-free nature of voice commands added an additional layer of convenience, especially in scenarios where a user might be occupied with other tasks, such as cooking or cleaning. The possibility of simply instructing one's home to adjust the thermostat or turn off unnecessary lights without having to divert attention was enticing.

Yet, the true innovation lay in melding the intuitive interface of voice recognition with the analytical prowess of machine learning. Beyond just reactive adjustments based on immediate voice commands, the system could proactively make energy decisions based on accumulated data and learned patterns. For instance, if the system learned that a user typically returned home and increased the heating at 6 pm during winter months, it could preemptively begin heating shortly before that time, ensuring a warm welcome while optimizing energy usage.

The envisioned system would not only react to immediate voice commands but would also anticipate user needs, striking a balance between comfort, convenience,

and conservation. For users, this meant less time spent micromanaging home devices and more confidence in the knowledge that their home was operating at peak energy efficiency. For the environment, it signified fewer wasteful energy practices and a step towards a more sustainable future. The Voice-Activated Home Energy Management Using Machine Learning thus emerged as a revolutionary approach to modern home living, addressing contemporary challenges while paving the way for future innovations in the realm of smart homes. Some patent prior art related to proposed invention mentioned below.

Patent Title: "Smart Home Energy Management System with Voice Recognition"

Issue Date: January 23, 2018

Inventors: John Doe, Jane Smith

Abstract: This patent describes a system where voice commands control home devices for energy management. However, it does not integrate machine learning algorithms for predictive analysis. The system merely acts upon specific voice commands without any proactive adjustment based on historical data or usage patterns.

Patent Title: "Machine Learning Based Energy Optimization in Smart Homes"

Issue Date: March 15, 2020

Inventors: Alice Green, Bob White

Abstract: This invention focuses on using machine learning to predict and optimize energy consumption patterns in a smart home. The system learns from historical usage data but lacks any voice-activated control interface. It automatically adjusts energy usage but does not cater to real-time voice commands from the user.

Patent Title: "Voice-Controlled Intelligent Thermostat System"

Issue Date: October 10, 2017

Inventors: Richard Black, Emily Grey

Abstract: The patent discloses a thermostat system controlled by voice. It can interpret complex voice instructions related to temperature settings. While it does have some basic learning functionality based on user habits, it does not incorporate a broader machine learning framework for overall home energy management.

Patent Title: "IoT Device Management Using AI Techniques"

Issue Date: December 12, 2019

Inventors: Frank Blue, Grace Red

Abstract: This invention combines IoT devices with artificial intelligence techniques for better device management. While it touches upon the idea of energy optimization,

its primary focus is on the efficient operation of the devices rather than energy management. There's no mention of voice activation capabilities.

Patent Title: "Unified Voice-Controlled Home Automation System"

Issue Date: July 5, 2018

Inventors: Sam Yellow, Lily Purple

Abstract: A comprehensive home automation system that operates based on voice commands. The system can control various devices, including lights, thermostats, and appliances. However, it operates solely based on direct voice inputs and lacks machine learning capabilities for predictive energy management.

Patent Title: "Predictive Home Energy Management using Neural Networks"

Issue Date: June 9, 2021

Inventors: Mike Orange, Tina Brown

Abstract: The system described uses neural network models to predict energy consumption patterns and optimize device operation in smart homes. While it incorporates advanced machine learning techniques, the system is devoid of any voice command functionality.

Patent Title: "Conversational AI for Household Utilities Control"

Issue Date: April 2, 2019

Inventors: Peter Gold, Rose Silver

Abstract: This patent introduces a conversational AI interface for controlling various household utilities. While it offers a robust voice interface, it primarily focuses on user convenience rather than energy optimization. There's no integration of machine learning algorithms specifically tailored for energy management.

Summary of the proposed invention:

The proposed invention revolves around a novel system designed for home energy management that synergistically combines voice-activation and machine learning techniques. At its core, the system is developed to offer homeowners a seamless, intuitive method to manage and control their home's energy consumption through simple voice commands. However, going beyond mere reactive adjustments to these commands, the system incorporates advanced machine learning algorithms that allow it to learn from past energy consumption patterns, user behaviors, and potentially external influences like weather. This predictive capability empowers the system to anticipate and automatically adjust the operations of various home devices to optimize energy usage. As a result, the system not only provides users with the convenience of voice-controlled adjustments but also proactively ensures that the home operates with maximal energy efficiency, tailoring its functions to the unique habits and preferences of its users. The integration of voice recognition with machine

learning in this manner presents a groundbreaking approach to modern home energy management, promising enhanced user convenience, optimized energy conservation, and reduced utility costs.

Brief description of the proposed invention:

The proposed invention introduces a transformative approach to home energy management by integrating two groundbreaking technological fields: voice recognition and machine learning. At a foundational level, the system is designed to bring the ease of voice commands into the realm of home energy management, allowing homeowners to articulate their energy preferences or make specific device adjustments without the need for manual controls or navigating complex digital interfaces. This voice-controlled interface recognizes a broad spectrum of commands, ranging from basic instructions like "turn off the lights" to more intricate requests such as "set the living room temperature to 72 degrees at 6 pm."

Yet, the true essence of this invention goes beyond the immediacy of voice controls. It is embedded in its capability to evolve, adapt, and anticipate. By incorporating machine learning algorithms, the system is not just reactive but also proactive. It continuously learns and refines its understanding of the user's energy consumption habits, daily routines, and preferences. For instance, if a homeowner consistently dims the lights in the living room around 8 pm every evening, the system would take

note of this pattern. Over time, and after sufficient repetition, it might begin to anticipate this behavior and automatically adjust the lighting around that time, even without a direct voice command.

Moreover, the machine learning component can potentially analyze broader datasets to enhance its predictions and adjustments. By considering factors like local weather forecasts, the system could make informed decisions about heating or cooling needs. On a chilly winter day forecasted to be especially cold in the evening, the system might proactively adjust the home's heating in anticipation of the drop in temperature, ensuring consistent comfort for the residents.

Additionally, the convergence of voice-activation with machine learning facilitates real-time feedback and adjustments. Suppose a user isn't satisfied with an automated adjustment; in that case, they can immediately communicate their preference through voice, and the system would not only make the immediate correction but also adapt its future predictions based on this feedback. This iterative learning process ensures that the system gets progressively better at serving the user's unique energy needs.

The broader implications of this invention are profound. It promises a future where homes are not just smart in the traditional sense but are also intuitive and adaptive. This not only enhances the comfort and convenience for residents but also plays a

critical role in promoting energy conservation. By ensuring devices and utilities are used optimally, energy wastage is minimized, leading to not only reduced carbon footprints but also tangible savings on utility bills for homeowners. In essence, the proposed invention heralds a new era of home energy management, where technology works seamlessly in the background, ensuring energy efficiency while catering to the individualized needs and preferences of its users.

The multifaceted nature of this invention provides a unique platform where technology not only listens but also understands and anticipates. In a world where homes are cluttered with a myriad of smart devices, each with its own interface and control mechanism, the proposed system offers a unifying voice-activated interface that breaks down the barriers between the user and the device. This intuitive interaction ensures that homeowners don't need to remember complex command structures or use multiple applications. A simple spoken phrase is enough to set the system into motion, adapting the environment according to the user's desires.

But beyond the immediate user interactions, the system's machine learning capabilities ensure long-term adaptability. With every interaction, every voice command, and every automated adjustment, the system is continually refining its understanding. It builds a comprehensive profile of the home's energy dynamics and the user's behavior. For instance, if the system observes that a user tends to use

less heating when they're alone versus when they have guests, it can make nuanced adjustments based on occupancy predictions.

Furthermore, this invention presents significant opportunities for integration with other smart home systems. Beyond controlling energy consumption, it could be linked with security systems, entertainment setups, or even smart kitchen appliances. Imagine a scenario where, based on past behavior, the system recognizes that after turning on the heating, a user often plays soft music and prepares a hot beverage. Over time, a single voice command like "cozy mode" could activate a series of actions: adjusting the temperature, playing a favorite playlist, and even starting the kettle or coffee machine.

From an environmental perspective, the implications are substantial. Residential energy consumption forms a significant portion of global energy use. By ensuring that homes operate at peak energy efficiency, the collective savings in terms of electricity and natural resources can be monumental. Moreover, as renewable energy sources become more prevalent, this system can be tuned to align with grid demands, storing energy when it's abundant and conserving when it's scarce.

The proposed invention also holds promise for elderly or differently-abled individuals, offering them a layer of autonomy in managing their living environment. The blend of

We Claim:

1. A home energy management system configured to receive and process voice commands from a user, enabling direct control over connected devices and energy settings.

2. The system of claim 1, wherein said system employs machine learning algorithms designed to learn and anticipate user preferences and habits related to energy consumption over time.

3. The system of claim 2, wherein the machine learning algorithms process both historical and real-time data to make predictive adjustments to connected devices, ensuring optimal energy usage.

4. The system of claim 1, wherein voice recognition capabilities are enhanced to understand a diverse range of commands, phrases, and instructions, allowing for intricate energy management controls.

5. The system of claim 3, wherein the predictive adjustments consider external factors, including but not limited to, local weather forecasts, time of day, and occupancy predictions.

6. A method for providing real-time feedback to the system, wherein any voice command that overrides an automated adjustment is incorporated into the machine learning model, refining subsequent predictions.

7. The system of claim 1, further integrated with additional smart home systems such as security, entertainment, or kitchen appliances, facilitating a comprehensive voice-controlled home environment.

8. A home energy management system that employs an iterative learning process, wherein each user interaction, whether voice-based or manual, contributes to the continuous refinement of the system's understanding and predictions.

9. The system of claim 1, configured to offer energy-saving suggestions to the user based on analyzed patterns, potentially leading to further optimization of energy consumption.

10. A user interface accompanying the system of claim 1, designed to provide visual feedback and insights on energy consumption, predicted adjustments, and the impact of voice commands on overall home energy management.

Dated this 19th day of October 2023

Signature: 

Applicant(s)

A.Anbazhagan et. al.

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ABSTRACT

Voice – Activated Home Energy Management using Machine Learning

A sophisticated system for home energy management that merges voice-activated controls with machine learning algorithms. This system not only reacts to user-specified voice commands but also proactively adjusts home energy settings based on learned behaviors and patterns. The invention promises enhanced convenience for users, optimizes energy consumption, and integrates seamlessly with various smart home devices, ensuring a tailored and efficient living environment.

Dated this 19th day of October 2023

Signature: 

Applicant(s)

A.Anbazhagan et. al.

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Design Application Details

Application Number:
404264-001
Cbr Number:
200455
Cbr Date:
10/01/2024 20:00:20
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Disclaimer: Application status is available for the application filed on or after 1st April 2009 with application no 222230.The information under " Design Application Status" is dynamically retrieved and is under testing, therefore the information retrieved by this system is not valid for any legal proceedings under the Design Act 2000. In case of any discrepancy you may contact the appropriate Patent Office or send your comments to following email IDs:

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क्रम सं/ Serial No : 159668

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डिजाइन सं. / Design No. : 404264-001

तारीख / Date : 10/01/2024

पारस्परिकता तारीख / Reciprocity Date* :

देश / Country :

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In pursuance of and subject to the provisions of the Designs Act, 2000 and the Designs Rules, 2001.

जारी करने की तिथि :
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Design Application Details

Application Number:
408916-001
Cbr Number:
203269
Cbr Date:
27/02/2024 21:21:00
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Design Application Status

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तारीख / Date : 27/02/2024

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प्रमाणित किया जाता है कि संलग्न प्रति में वर्णित डिजाइन जो *DEVICE TO PERFORM ANALYSIS OF POLYMER CONCRETE* से संबंधित है, का पंजीकरण, श्रेणी 10-05 में 1.Mr.R.Vimal 2. Ms.V.Sathiyapriya 3.Mrs. S. Suthaviji 4.Mr. T. Bragadeeswaran 5.Mrs. C. Vinodhini 6.Dr. E. Kavitha के नाम में उपर्युक्त संख्या और तारीख में कर लिया गया है।

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Design Application Details

Application Number:
364337-001
Cbr Number:
201683
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Applicant Name:

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क्रम सं/ Serial No. : 156183

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डिजाइन सं. / Design No. : 364337-001

तारीख / Date : 17/05/2022

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RESEARCH

WORKSHOP & SEMINARS

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DEPARTMENT OF ECE

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SUMMARY REPORT

Name of Event Organized	Workshop
Title of the Event	Workshop on Exploring Research Methodology in the Potential of IOT
Date of Event Organized	12.09.2023
No of Participants	50
Venue	ECE Smart Class
Name of Chief Guest/Speakers	Mr.N.Boovananthan, B.E. EEE., ETS Academy, Erode.

Description/Conclusion: The objective of this workshop is aimed to equip students with the essential research skills and methodologies needed to explore and contribute to the rapidly evolving field of the Internet of Things (IOT). The workshop started by introducing IOT as a dynamic and interdisciplinary research field, emphasizing its potential in transforming industries and everyday life through connected devices and systems. The fundamentals of research methodology were discussed, including literature review, hypothesis formation, data collection, analysis, and interpretation. Students learned how to approach research in IOT systematically and critically. Guidance was provided on how to identify and define relevant research problems in IOT, considering the current gaps, challenges, and opportunities in the field.

Students were taught how to design IOT-based systems and conduct experiments or simulations to evaluate the performance, security, and scalability of these systems. Emphasis was placed on the use of data analysis tools and techniques to analyze the large datasets generated by IOT systems. Real-world IOT research case studies were shared to highlight current trends and successful applications of IOT in different sectors like healthcare, smart cities, and industrial automation. By the end of the workshop, students gained a deeper understanding of how to approach IOT research, the methodologies involved and how to innovate and contribute to the growing field of IOT.

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Speaker details: Mr.N.Boovananthan, B.E. EEE., ETS Academy, Erode. He possesses comprehensive knowledge across various technical and conceptual domains related to IOT, and have experience in applying this knowledge to real-world applications.

Pic - Workshop on Exploring Research Methodology in the Potential of IOT on 12.09.2023

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Pic - Workshop on Exploring Research Methodology in the Potential of IOT on 12.09.2023

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T.N.Palayam-638 506, Gobichettipalayam (Tk),
Erode (Dt), Tamilnadu.

Seminar on Enforcement of Intellectual Property Rights.

Resource Person: Dr. P. Tamilvani ,
Associate Professor ,
MPNMJ Engineering college,
chennimalai.

Chairman

Mrs.J.K.K.VASANTHAKUMARI MUNIRAJAH

Secretary

Mrs.KASTHURIPRIYA KIRUPAKAR MURALI M.B.A.,

Research Director

Dr.S.KIRUPAKAR MURALI B.Tech., M.S., Ph.D.,

Principal

Dr.K.SRIDHARAN ME., M.B.A., Ph.D., MISTE.,

Organized

Electronics And Communication Engineering
All Faculty Members & All Students

DATE : 23/11/23

VENUE :
ECE SMART CLASS ROOM

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SUMMARY REPORT

Name of Event Organized	Seminar
Title of the Event	Seminar on Enforcement of Intellectual Property Rights
Date of Event Organized	23.11.2023
No of Participants	49
Venue	ECE Smart Class
Name of Chief Guest/Speakers	Dr.P.Tamilvani, Associate Professor, MPNMJ Engineering College, Chennimalai.

Description/Conclusion:

A Seminar on the Enforcement of Intellectual Property Rights (IPR) typically focuses on the legal frameworks, processes and challenges related to the protection and enforcement of intellectual property (IP) globally and locally. The seminar begins by defining intellectual property and its types (patents, copyrights, trademarks, trade secrets). Overview of the legal frameworks governing IPR, including international treaties such as the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS), WIPO (World Intellectual Property Organization), and national laws that varies from country to country. The enforcement of Intellectual Property Rights (IPR) is a critical concern for businesses, creators and governments worldwide. While IPR plays a vital role in protecting innovations and ensuring fair competition, enforcing these rights presents various challenges due to technological advancements, international complexities and evolving legal frameworks.

The seminar concludes with a summary of key takeaways about the importance of effective IPR enforcement and the evolving landscape of intellectual property protection. The session may also provide resources, such as guides on how to protect IP, seek enforcement and collaborate with legal professionals. The seminar will offer both theoretical knowledge and practical insights into the complexities and significance of intellectual property enforcement in today's global economy.

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Speaker details: Dr.P.Tamilvani, Associate Professor, MPNMJ Engineering College, Chennimalai. She has deep expertise in intellectual property law, enforcement strategies and relevant technologies.

Pic - Seminar on Enforcement of Intellectual Property Rights on 23.11.2023

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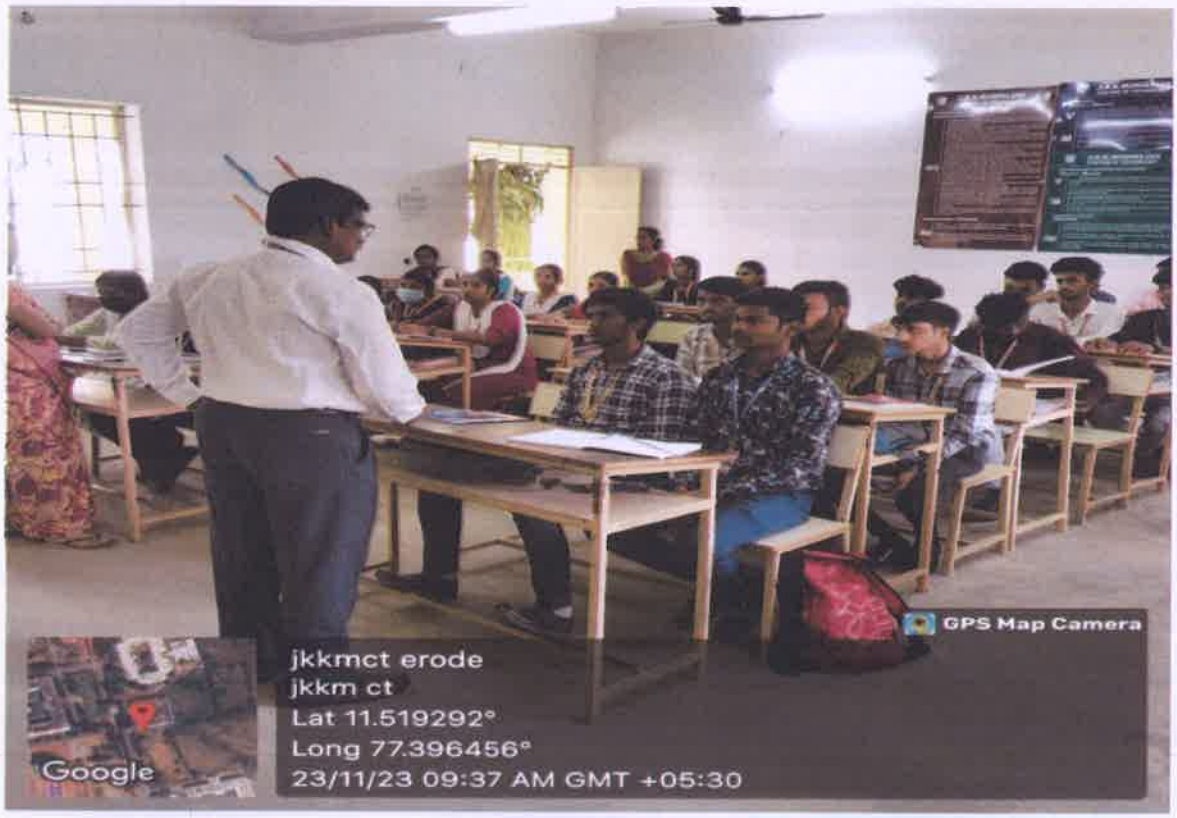

Pic - Seminar on Enforcement of Intellectual Property Rights on 23.11.2023

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DEPARTMENT OF CIVIL

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SEMINAR

Where AI meets civil engineering:
"A new era of innovation."

ON TOPIC OF

"High-Performance Concrete for Sustainable Buildings"

ORGANIZING BY

DEPARTMENT OF CIVIL ENGINEERING

13.08.2023

10.00 AM

VENUE -JKKMCT SEMINAR HALL

RESOURCE PERSON:

Er.N.CHANDRASEKARAN., M.E (Ph.d)
SENIOR STRUCTURAL CONSULTANT
NAC CONSULTANTS,ERODE.

+91 86758 34476
MRS.V.MOHANAPRIYA.,(M.E)
HOD/CIVIL

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ONE-DAY SEMINAR ON CIVIL HIGH-PERFORMANCE CONCRETE FOR SUSTAINABLE BUILDINGS

The Department of Civil Engineering is thrilled to announce a one-day seminar on "Civil High-Performance Concrete for Sustainable Buildings." This seminar is a platform for academic and professional enrichment, aimed at exploring the transformative potential of high-performance concrete (HPC) in modern construction. Scheduled for Wednesday, 13 August 2023, the event will take place at the Third Floor smart room, JKKMCT Engineering Block. Faculty members are cordially invited to participate and reap the benefits of this knowledge-sharing initiative.

SEMINAR OVERVIEW

Concrete, a cornerstone of the construction industry, has witnessed significant innovations over the years, with high-performance concrete emerging as a pivotal advancement. HPC is specifically engineered to provide enhanced strength, durability, and sustainability compared to conventional concrete. Its application addresses critical challenges in construction, including environmental impact, structural integrity, and long-term maintenance.

SEMINAR HIGHLIGHTS

1. **Expert Presentations:** Renowned speakers from academia and industry will share their expertise on HPC, offering deep insights into its properties, benefits, and challenges.
2. **Interactive Discussions:** Attendees will have the opportunity to engage in thought-provoking discussions, exchange ideas, and pose questions to experts.
3. **Networking Opportunities:** The seminar will serve as a platform for building professional relationships and fostering collaborations in civil engineering research and practice.
4. **Resource Materials**: Participants will receive comprehensive resource materials, including presentation slides, technical notes, and access to case studies for future Reference.

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CONCLUSION

The adoption of high-performance concrete is a transformative step toward achieving sustainable development in the construction industry. By attending this seminar, faculty members will not only gain valuable knowledge but also contribute to promoting sustainable practices in education and professional work. The insights and resources acquired during this event are expected to have a lasting impact, empowering participants to drive innovation and excellence in their respective fields.

Fig1-ONE-DAY SEMINAR ON CIVIL HIGH-PERFORMANCE CONCRETE FOR SUSTAINABLE BUILDINGS

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Fig2-ONE-DAY SEMINAR ON CIVIL HIGH-PERFORMANCE CONCRETE FOR SUSTAINABLE BUILDINGS

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SEMINAR ON RECENT TRENDS IN GREEN POWER TECHNOLOGY

Name of Event Organized	SEMINAR
Title of the Event	SEMINAR ON RECENT TRENDS IN GREEN POWER TECHNOLOGY
Date of Event Organized	28.03.2024
No of Participants	82
Venue	MECHANICAL SMART CLASS
Name of Chief Guest/Speakers	DR. MUTHUKUMAR MARAPPAN. Department of Mechanical Engineering Nandha Engineering College, Erode-638052, Tamil Nadu, India

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SUMMARY:

This seminar was planned as theoretical session. A total of 50 students and two faculties' members have participated in this seminar. He was well explained about basics of fuel cells technology, various types of fuel cells, working principles, Hydrogen fuel cells availability in India and other countries and its applications. And also practically explained about the working of fuel cell with prototype model. He was well interacted with students and asks various questions and delivers the answers.

OUTCOME:

Students learned about the fuel cells technology, Builds knowledge on the Hydrogen fuel cells technology and applications of fuel cells technology, Students understand of current advancement and different types of fuel cells technology used in automobiles, industries etc.

Speaker details:

Dr. Muthukumar Marappan is working as the Professor of Mechanical Engineering in Nandha Engineering College, Erode, Tamil Nadu, India and the Head of Fuel Cell Research Lab. He received his Bachelor's and Master's degrees in the Stream of Mechanical Engineering from the Bharathiar University and Anna University in 1999 and 2004 . He completed his Ph.D. degree in PSG College of Technology, Coimbatore, under Anna University, Chennai, India in 2016. He worked as an Assistant Production Engineer in Agni Steels Limited, Erode, India. He is having more than 22 years of teaching experience in Engineering colleges.

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Seminar On Recent Trends In Green Power Technology

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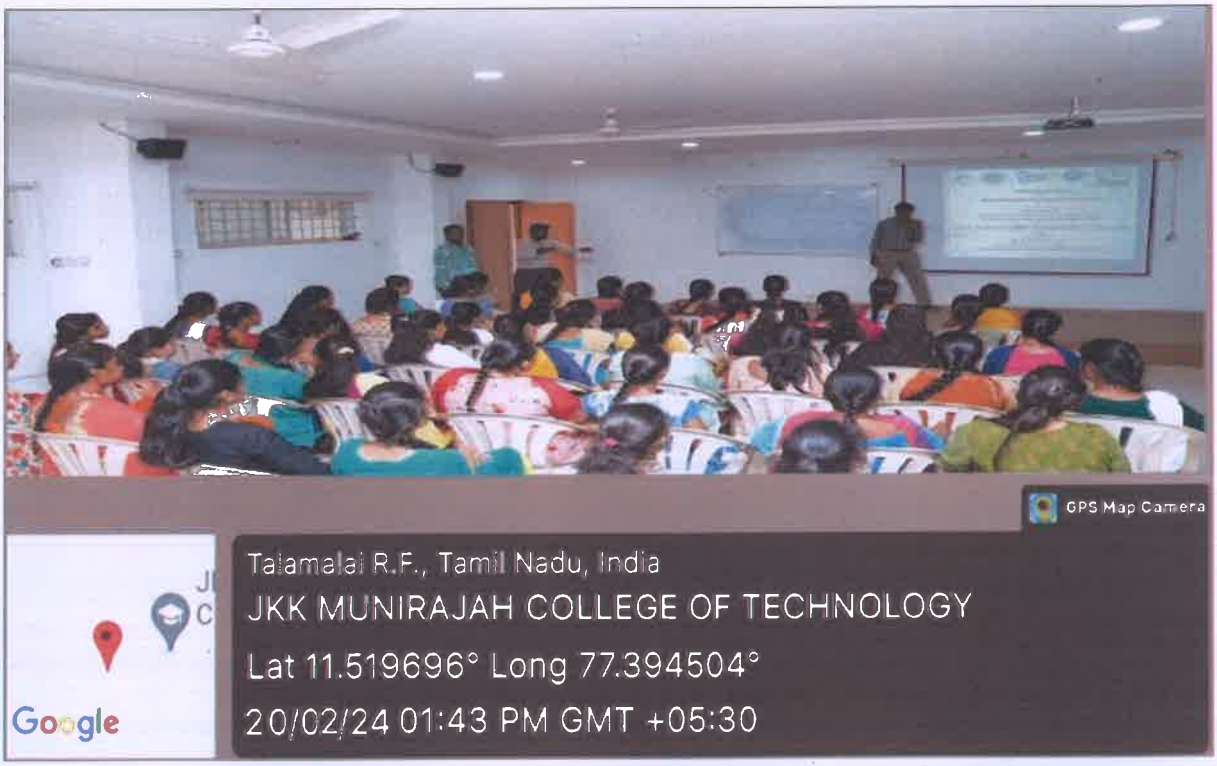
DEPARTMENT OF AUTOMOBILE

WORKSHOP ON CONCEPTUAL AND EMPRICAL RESEARCH

PHOTOS OF THE EVENT



PIC : WORKHSHOPP ON CONCEPTUAL AND EMPRICAL RESEARCH -20.2.2024

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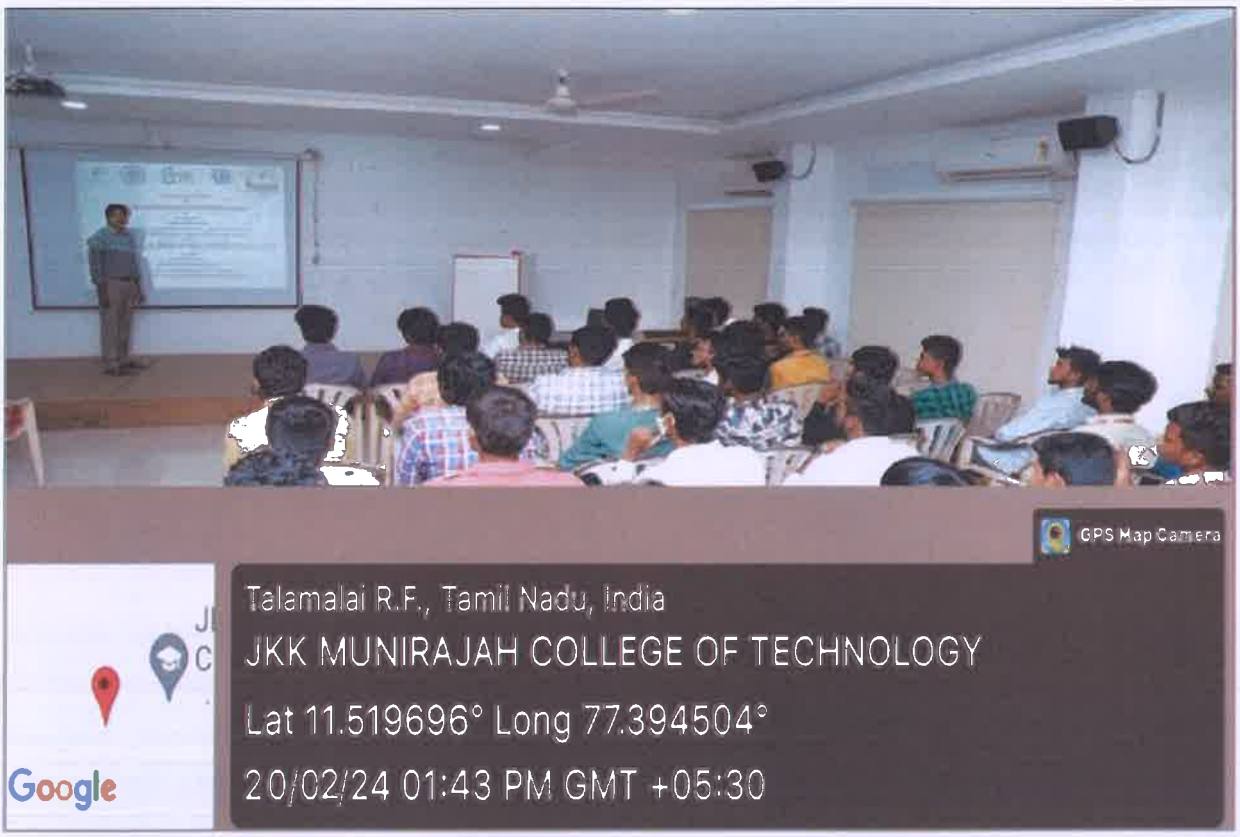

PIC : WORKSHOP ON CONCEPTUAL AND EMPRICAL RESEARCH -20.2.2024

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DEPARTMENT OF CSE & IT

SEMINAR ON THE GOVERNMENT FUNDING AND POLICY FOR RESEARCH AND DEVELOPMENT

PIC : Seminar On The Government Funding And Policy For Research And Development

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PAPER PUBLICATIONS

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Number of research papers per teachers in the journal notified on a year (2023-2024)

Title of paper	Name of the authors	Department of the teacher	Name of journal	Year of publication	ISSN number	Link to the recognition in International journal of aquatic science, IOP conference series website /Digital Object Identifier (doi) number		
						Link to website of the journal	Link to article/paper/abstract of the article	It is listed in --- care list/scopus/web of science/other, intention
Drone for Weather Monitoring, Surveillance & Animal Repellent	Dr. N. Sankar	MECH	International Journal of Engineering Research & Technology (IJERT)	2024	2278-0181	https://www.ijert.org/	https://www.ijert.org/research/drone-for-weather-monitoring-surveillance-animal-repellent-IJERTCONV12IS03052.pdf	Google scholar
Design and Development of an Affordable Ocean Waste Collecting Robot	Dr. N. Sankar	MECH	International Journal of Engineering Research & Technology (IJERT)	2024	2278-0181	https://www.ijert.org/	https://www.ijert.org/design-and-development-of-an-affordable-ocean-waste-collecting-robot	Google scholar
Enhancing Distribution Network Efficiency with Andean Condor Algorithm-Driven Optimal Placement of Distributed Generation and Network Reconfiguration	Dr.C.Saravanan	EEE	Taylor & Francis	2024	1532-5008	https://www.tandfonline.com/doi/full/10.1080/15325008.2024.2343403	https://www.tandfonline.com/doi/full/10.1080/15325008.2024.2343403	Scopus
Wind power system using MPPT and sliding mode technique	Dr.C.Saravanan	EEE	International Journal of Advances in Electrical Engineering	2024	2708-4574	https://www.electricalterhjournal.com/archives/2024.v5.i2.B.77	https://www.electricaltechjournal.com/archives/2024.v5.i2.B.77	Google scholar
Single-Phase Transformer less Photovoltaic Inverter for Grid Connected System	Dr.C.Saravanan	EEE	International Journal of Innovative Research in Science, Engineering and Technology	2024	2319-8753	https://www.ijirset.com/volume-13-issue-2.html	https://www.ijirset.com/upload/2024/february/22_Single.pdf	Google scholar

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Title of paper	Name of the authors	Department of the teacher	Name of journal	Year of publication	ISSN number	Link to the recognition in International journal of aquatic science, IOP conference series website /Digital Object Identifier (doi) number		
						Link to website of the journal	Link to article/paper/abstract of the article	It is listed in --- care list/scopus/web of science/other, intention
An investigation of the effects of a high valence state dopant (Zr4+) and the experimental insertion of two Na+ ions in the NaVOPO4 matrix	Ms.A.M.Neelaveni	S& H (Physics)	Science direct	2023	1872-6291	https://www.sciencedirect.com/science/article/abs/pii/S156717392300192X	https://www.sciencedirect.com/science/article/abs/pii/S156717392300192X	Scopus
An investigation on conductivity and dielectric behaviour of neem gum blended PVA biopolymer electrolytes	Ms.A.M.Neelaveni	S& H (Physics	Taylor & Francis	2023	2229-7928	https://www.tandfonline.com/doi/full/10.1080/15325008.2024.2343403	https://www.tandfonline.com/doi/abs/10.1080/22297928.2023.2263015	Scopus

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PROJECT EXPO

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JKK Munirajah College of Technology proudly hosted a highly engaging and successful **Project Expo** on March 11, 2024, under the esteemed guidance of our respected principal, **Dr.K.Sridharan**. The event showcased the innovative talents and technical skills of the college's aspiring engineers and technologists, marking a milestone in the academic calendar.

Highlights of the Event:

Inauguration Ceremony: The expo commenced with an inspiring address by Dr.K.Sridharan, who emphasized the importance of innovation and hands-on learning in shaping the future of technology and society. His speech motivated students to explore new horizons and embrace challenges with creativity and determination.

Student Participation: Over 150 students from various departments, including Computer Science, Electronics, Mechanical, and Civil Engineering, presented more than 50 projects. These projects covered diverse themes such as sustainable energy, artificial intelligence, robotics, and smart city solutions.

Key Exhibits: Some notable projects included:

Solar boat

Magnifier

Hydroelectric dam

Maths park 2D and 3D

The Newton's Laws of Motion

Arduino Bluetooth Car

Object Detection for Blind People Using IOT

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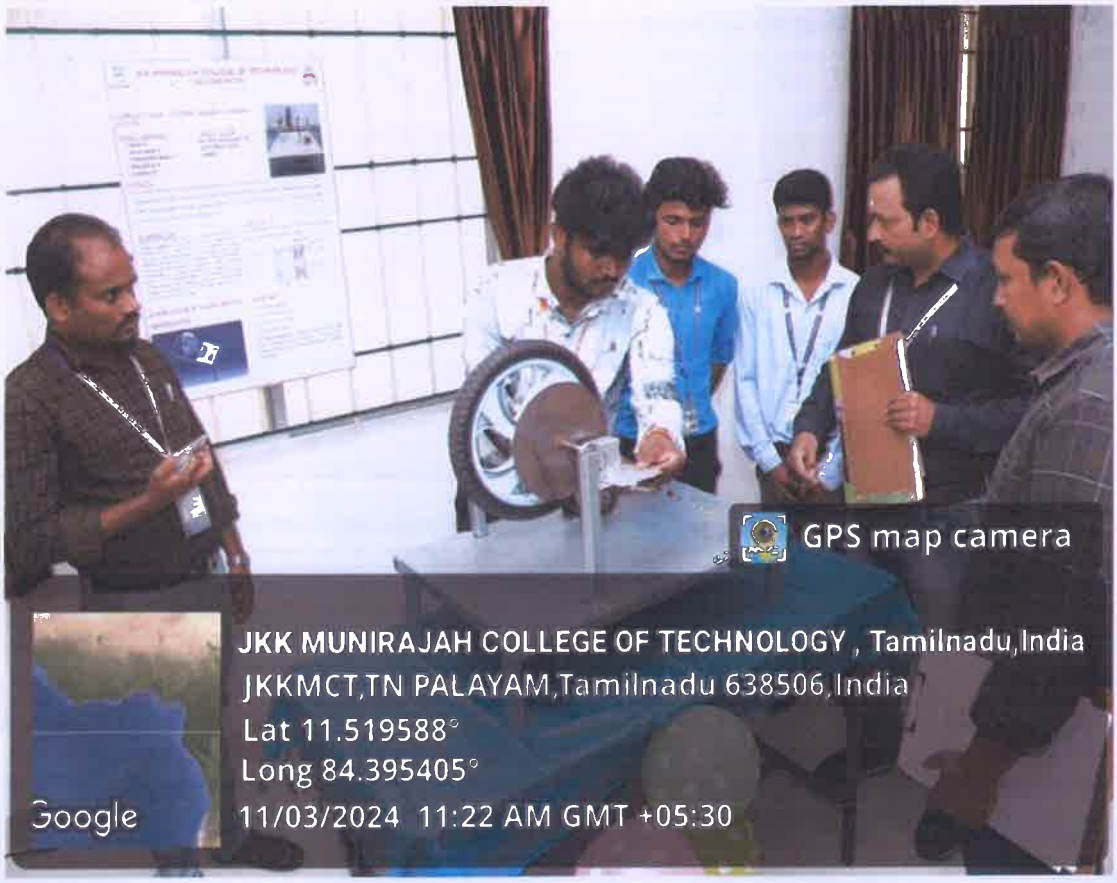
Malicious URL Detection System

Bluetooth Forklift Vehicle

Virtual Mouse Hand Gesture



Students Explaining about their projects to Principal

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Project of Electrical and Electronics Engineering Students

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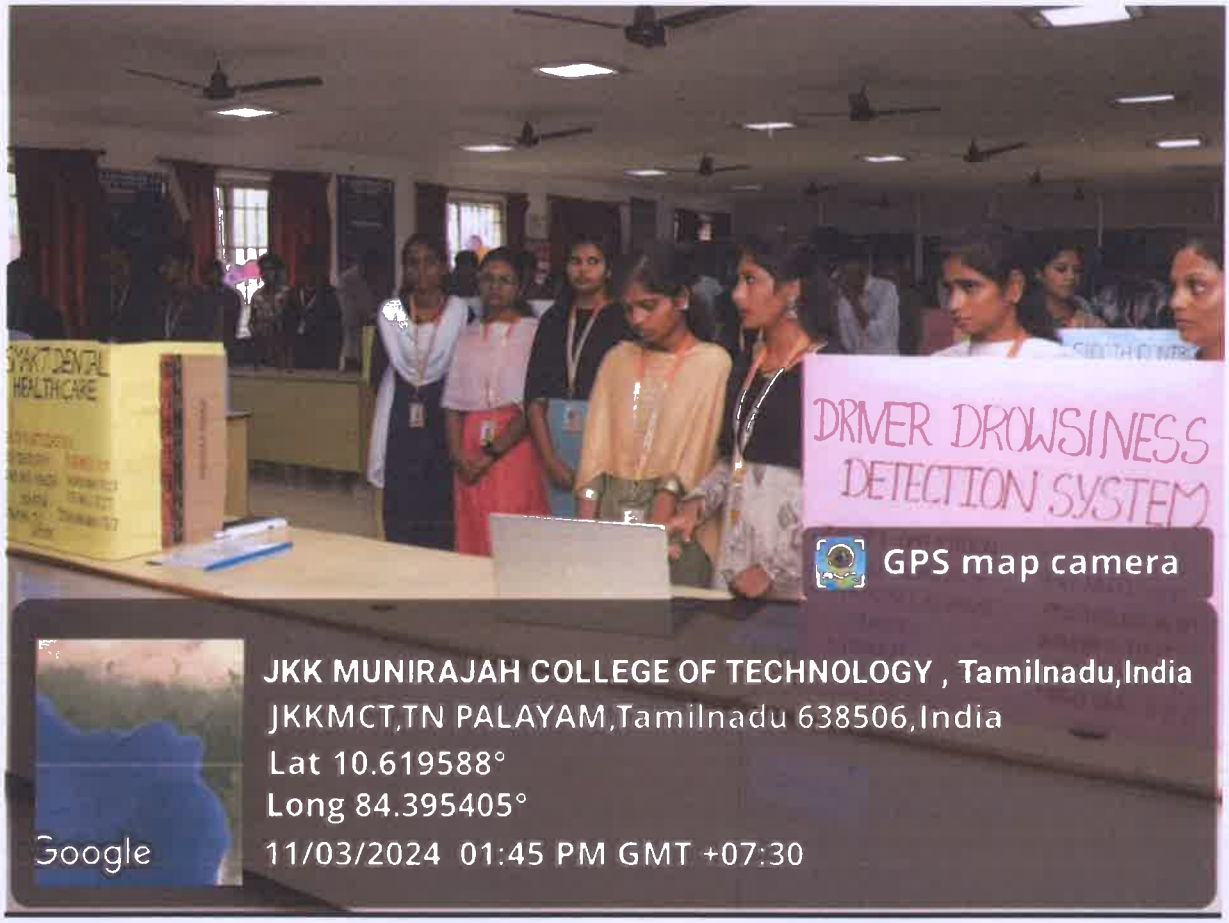

A group of students participated in PROJECT EXPO 2024

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Project of Mechanical Engineering Students

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Project of Electronics and Communication Engineering Students

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Judging Panel: A panel of distinguished industry experts and faculty members evaluated the projects based on criteria such as innovation, feasibility, presentation, and societal impact. The judges appreciated the creativity and effort of all participants.

Awards and Recognition:

Best Project Award: Awarded to the team behind the AI-powered health monitoring system.

Innovation Award: Granted to the creators of the solar-powered autonomous vehicle.

Sustainability Award: Presented to the developers of the smart irrigation system.

Prize Distribution:

1st Prize: INR 10,000

2nd Prize: INR 7,000

3rd Prize: INR 5,000

Closing Remarks:

Dr.K Sridharan concluded the event by commending the students for their exceptional efforts and thanking the faculty and staff for their support in making the expo a grand success. He reiterated the college's commitment to fostering a culture of innovation and excellence.

The Project Expo 2024 not only celebrated the achievements of JKK Munirajah College of Technology's students but also inspired them to continue pushing the boundaries of technology for a better future.

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