



# J.K.K. MUNIRAJAH COLLEGE OF TECHNOLOGY

Approved by AICTE, New Delhi And Affiliated to Anna University, Chennai.

Accredited by NAAC with "A" grade

T.N. Palayam (Po), Gobi (Tk), Erode (Dt) – 638 506



## SUMMARY DETAILS OF AVERAGE PERCENTAGE OF GRANTS RECEIVED FROM GOVERNMENT / NON GOVERNMENT AGENCIES

ACADEMIC YEAR	2022-2023
No of departments received research grants	6
Total no of Departments	9
Percentage of departments received research grants	66.66

PRINCIPAL

PRINCIPAL

JKK MUNIRAJAH COLLEGE  
OF TECHNOLOGY

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



# J.K.K. MUNIRAJAH COLLEGE OF TECHNOLOGY

Approved by AICTE, New Delhi And Affiliated to Anna University, Chennai.

Accredited by NAAC with "A" grade

T.N. Palayam (Po), Gobi (Tk), Erode (Dt) – 638 506



2022-2023

Name of the project / Endowments, chairs	Name of the Principal Investigator / Co-Investigator	Department of Principal Investigator	Year of Award	Amount Sanctioned (INR in lakhs)	Name of the Funding Agency
Smart city technology using IOT devices and data analysis to improve urban infrastructure and services	Mr.K.S.VINOTHAN Mrs.M.C.SAVITHRI	CSE	2022-2023	1.00L	Wavicle Data Solutions
Automated Inter-Patient seizure Detection using Multichannel Convolutional and Recurrent Neural Network	Mrs.P.SANGEETHA Mr.A.SAMPATH KUMAR	IT	2022-2023	1.13L	Amyo Technologies
Manufacturing of low Bricks by Plastic Granules Fly Ash	Mrs.V.MOHANAPRIYA Mr.R.VENKATESH	CIVIL	2022-2023	0.90L	A S Constructions and Promoters
Development of E-Waste reinforced aluminums metal Matrix Composites for Automobile Application	Mr.M.V.MAGESH Mr.S.GANESH KUMAR	AUTO	2022-2023	1.10L	Sakthi Gear Products
Design, Development of Industrial Flexible Hopper Feeding Mechanism	Mr.K.SRIRAM Mr.V.MAGESH	MECH	2022-2023	0.90L	Veejay Lakshmi Engineering Works Ltd
Smart Control System Using Advanced IOT Components Phase- 1	Mr.S.M.PRANESH Mr.A.VIGNESHKUMAR	EEE	2022-2023	0.50L	Power Electric Company

**PRINCIPAL**  
**PRINCIPAL**  
**JKK MUNIRAJAH COLLEGE**  
**OF TECHNOLOGY**  
**T.N. PALAYAM (Po)-638 506.**  
**Gobi (Tk), Erode (Dt).**

To

15.07.2022

The principal,  
J.K.K Munirajah College of Technology,  
T.N. palayam,  
Erode - 638506.

Respected Sir,


**Sub: Requesting R&D- Collaboration project –Smart city technology using IOT devices and data analysis to improve urban infrastructure and services- reg.**

Wavicle Data Solutions stands as the No.1 Software Company in Coimbatore. It also aims to make the company much more than an average rural BPO, rather a rurally-grounded innovative business that will continue to offer more services and serve more customers while producing wealth in the Indian rural economy.

In collaboration with an Educational Institution, we are planning to work out the project of 'Smart city technology using IOT devices and data analysis to improve urban infrastructure and services'. We like to work this project with collaboration of your Institution. As we are aware of JKK Munirajah college of Technology and faculty members of Information Technology have experience in research related activities.

We are seeking for your positive and earliest reply.

Sincerely,

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



Mr.D. Hari Haran,

Senior Manager IT,

Wavicle Data Solutions

**WAVICLE DATA SOLUTIONS,**  
Hanudev Info Park,  
Peelamedu, Coimbatore - 641 028.



ISO 9001:2015 Certified Institution  
**J.K.K.MUNIRAJAH COLLEGE OF TECHNOLOGY**  
(Approved by AICTE, New Delhi and Affiliated to Anna University, Chennai)

**Smt.M.VASANTHAKUMARI**  
Chairman & Managing Trustee

**Smt.M.KASTHURIPRIYA MBA.**  
Secretary

**Dr.K.SRIDHARAN Ph.D.,**  
Principal

To

28.7.2022

Mr.D. Hari Haran  
Senior Manager IT,  
Wavicle Data Solutions,  
Coimbatore.

Respected sir,


**Sub:** Research and development collaboration –Reg.Ref: DC/RD/IT/JKKMCT/dated 15.07.2022.


Good wishes! With immense happiness, we acknowledge your letter dated 15.07.2022 and we very glad and proud to accept your company's project proposal. We are thankful to your peer members for selecting our institution for the funded project. We, the team of J K K Munirajah College of technology have knowledgeable faculty members in academic, research and development areas. We assure that, we will give required technical support for the successful completion of "Smart city technology using IOT devices and data analysis to improve urban infrastructure and services". We are expecting the specifications, terms and conditions and duration of the projects to proceed further.

We would like to acknowledge that, we have received the project specifications. We have expert faculty members interested to work in the specified area as a team for the proposed project and their profiles have been enclosed. The proposed project is entitled as 'Smart city technology using IOT devices and data analysis to improve urban infrastructure and services' besides, we have also enclosed the Plan of work, financial details and faculty requirements. We also request you to please depute one technical person who can handle the day to day problems of this project for discussion. We are looking forward to explore with you.

Encl:

1. List of faculty members with their profile.
2. Execution plan for project work.
3. Financial details and Facilities required for completion of project.

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

With warm wishes,  
  
**PRINCIPAL**  
JKK MUNIRAJAH COLLEGE  
OF TECHNOLOGY  
T.N. PALAYAM (Po)-638 506  
GOBI (TK), ERODE (Dt).



ISO 9001:2015 Certified Institution  
**J.K.K. MUNIRAJAH COLLEGE OF TECHNOLOGY**  
(Approved by AICTE, New Delhi and Affiliated to Anna University, Chennai)

**Smt.M.VASANTHAKUMARI**  
Chairman & Managing Trustee

**Smt.M.KASTHURIPRIYA MBA.,**  
Secretary


**Dr.K.SRIDHARAN Ph.D.,**  
Principal

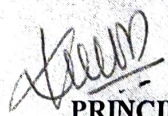
DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

FACULTY DETAILS

The following are the faculty members are involved in the project entitled 'Smart city technology using IOT devices and data analysis to improve urban infrastructure and services'

S.NO	NAME	DESIGNATION	AREA OF INTEREST
1.	Mr.K.S.VINOTHAN	AP/CSE	Internet of Things, Artificial Intelligence, Software Engineering
2.	Mrs.M.C.SAVITHRI	AP/CSE	MAT LAB, Computer Networks, DBMS.

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

With warm wishes  
  
PRINCIPAL  
PRINCIPAL  
JKK MUNIRAJAH COLLEGE  
OF TECHNOLOGY  
T.N. PALAYAM (PO)-638 506.  
GOBI (TK), ERODE (DT).



ISO 9001:2015 Certified Institution  
**J.K.K.MUNIRAJAH COLLEGE OF TECHNOLOGY**  
(Approved by AICTE, New Delhi and Affiliated to Anna University, Chennai)


Smt.M.VASANTHAKUMARI  
Chairman & Managing Trustee

Smt.M.KASTHURIPRIYA MBA,  
Secretary


Dr.K.SRIDHARAN Ph.D.,  
Principal

EXECUTION PLAN

Sl. No	Plan	Duration
1.	Data collection and review	2 months
2.	Prototype development	2 months
3.	Prototype testing	2 months
4.	Software development	2 months
5.	Software testing	1 months
Duration required for completion of the project		9 months

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

With warm wishes

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



ISO 9001:2015 Certified Institution  
**J.K.K.MUNIRAJAH COLLEGE OF TECHNOLOGY**  
(Approved by AICTE, New Delhi and Affiliated to Anna University, Chennai)

**Smt.M.VASANTHAKUMARI**  
Chairman & Managing Trustee

**Smt.M.KASTHURIPRIYA MBA.,**  
Secretary

**Dr.K.SRIDHARAN Ph.D.,**  
Principal

FINANCIAL DETAILS

S.No	Item Descriptions	Amount
1.	Desktop	15,000
2.	Software	15,000
3.	Hardware	20,000
4.	Transportation	8000
5.	Miscellaneous	10,000
6.	Testing	10,000
7.	Technical Assistant	22,000
	<b>Total</b>	<b>1,00,000</b>

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

With warm wishes

**PRINCIPAL**  
**PRINCIPAL**  
JKK MUNIRAJAH COLLEGE  
OF TECHNOLOGY

To

17.08.2022

The principal,  
J.K.K Munirajah College of Technology,  
T.N. palayam,  
Erode - 638506.

Respected Sir,


**Sub: Approval of budget and execution plan – reg.**

We are satisfied with your positive response with reference to the above letter. Our team members thoroughly satisfied with the furnished documents and details that you have sent. The project “**Smart city technology using IOT devices and data analysis to improve urban infrastructure and services**” has been accepted. Further, Mr.A.Karan, Data analyzer of our company will get in touch with you regarding prototype development. Expecting for the successful completion of the project.

Sincerely,



Mr.D. Hari Haran,  
Senior Manager IT,  
Wavicle Data Solutions.



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

**WAVICLE DATA SOLUTIONS,**  
Hanudev Info Park,  
Peelamedu, Coimbatore - 641 028.



ISO 9001:2015 Certified Institution  
**J.K.K.MUNIRAJAH COLLEGE OF TECHNOLOGY**  
(Approved by AICTE, New Delhi and Affiliated to Anna University, Chennai)

**Smt.M.VASANTHAKUMARI**  
Chairman & Managing Trustee

**Smt.M.KASTHURIPRIYA MBA.**  
Secretary

**Dr.K.SRIDHARAN Ph.D.**  
Principal

23.03.2023

To


Mr.D. Hari Haran  
Senior Manager IT,  
Wavicle Data Solutions,  
Coimbatore.

Dear Sir,


**Sub:** Completion of Research project- Reg.

We are pleased to inform you that, we have successfully completed the project work on "Smart city technology using IOT devices and data analysis to improve urban infrastructure and services". Herewith we are sending the modified project source along with the design. We are glad to invite your team to visit the completion of the project in our campus. Hence the project is completed, we request you to please send the amount to "The principal, JKK Munirajah College of Technology"

Looking forward for your response as soon as possible.

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

With warm wishes

  
**PRINCIPAL**  
**PRINCIPAL**  
JKK MUNIRAJAH COLLEGE  
OF TECHNOLOGY  
638 506

To

12.04.2023

The principal,  
J.K.K Munirajah College of Technology,  
T.N. palayam,  
Erode - 638506.

Respected Sir,


**Sub: Final Review of Product Design – reg.**

In addition to your above reference letter, we are very happy with your research project in question. The members of the peer committee address the work's completion. With respect to the product design and development process, our team members are fully satisfied. If we require any further modification or enhancements, we will intimate you soon. Herewith I am sending the amount Rs 1, 00, 000/-.

Sincerely,



Mr.D. Hari Haran,  
Senior Manager IT,  
Wavicle Data Solutions.

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

**WAVICLE DATA SOLUTIONS,**  
Hanudev Info Park,  
Peelamedu, Coimbatore - 641 028.

**SMART CITY TECHNOLOGY USING IOT DEVICES AND DATA ANALYSIS TO  
IMPROVE URBAN INFRASTRUCTURE AND SERVICES  
PROJECT PROPOSAL DOCUMENTS**

**wavicle**  
DATA SOLUTIONS

COIMBATORE – 641028

**Done by**

**Mr.K.S.VINOTHAN AP/CSE**

**Mrs.M.C.SAVITHRI AP/CSE**

**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**



**2022 – 2023**



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

## ABSTRACT

Internet of Things (IoT) is a system that integrates different devices and technologies, removing the necessity of human intervention. This enables the capacity of having smart (or smarter) cities around the world. By hosting different technologies and allowing interactions between them, the internet of things has spearheaded the development of smart city systems for sustainable living, increased comfort and productivity for citizens. The IoT for Smart Cities has many different domains and draws upon various underlying systems for its operation. In this paper, we provide a holistic coverage of the Internet of Things in Smart Cities. We start by discussing the fundamental components that make up the IoT based Smart City landscape followed by the technologies that enable these domains to exist in terms of architectures utilized, networking technologies used as well as the Artificial Algorithms deployed in IoT based Smart City systems. This is then followed up by a review of the most prevalent practices and applications in various Smart City domains. Lastly, the challenges that deployment of IoT systems for smart cities encounter along with mitigation measures.



**PRINCIPAL**

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

**INVOICE**

(Original)

<b>Core Computers</b> 244, 1 <sup>st</sup> Floor, Lakshmi Complex, Nethaji road, Erode. TIN:33422884107 CST:1044986 E-mail:admin@corecom.in	Invoice no.	Dated.
	<b>358</b>	<b>30.08.2022</b>
	Delivery note. -	Mode/Terms of payment: -
	Supplier's REF. -	Other Reference's: <b>jayaraj</b>
Buyer <b>JKK MUNIRAJAH COLLEGE OF TECHNOLOGY,</b> TNPALAYAM(PO),GOBI(TK), ERODE DT.	Dispatch document no.	Dated.
	Dispatched through.	Dated.
	Terms of Delivery.	

S.no	Description of Goods	Quantity	Rate	Per	Disc%	Amount
1	DELL LAPTOP Dell inspiron Laptop5567 i7 7 <sup>th</sup> Gen 16GB 2 TB HDD 15.6 Inch Win10+MSO 4GB Graphics Black	1NOS	38,700.00	NOS	-	<b>37,000.00</b>
2	Working Station Kit	1NOS	21,100.00	NOS	-	<b>15,000.00</b>
	5% - VAT OUT PUT A/C		5 %			<b>2600.00</b>
	TOTAL	2NOS				<b>₹54600.00</b>


Amount Chargeable(in words)  
**Indian Rupees Fifty Four thousand Six hundred only**



**Declaration:**

We declare that this invoice shows the actual price of the goods described and that all particulars are true and correct.

This is a Computer Generated Invoice

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



# TNR & COMPANY

Chartered Accountants

DATE : 16-02-2024

## UTILIZATION CERTIFICATE

Certified that an amount of Rs. 1,00,000/- ( One Lakh Rupees Only) sanctioned during the year 2022-2023 infavour of JKK MUNIRAJAH COLLEGE OF TECHNOLOGY, received from the WAVICLE DATA SOLUTIONS has been utilized for the purpose of Smart City technology using IOT devices and data analysis to improve urban infrastructure and services for it was sanctioned and condition of the grants are fulfilled / being fulfilled.

PROJECT INVESTIGATOR

AUDITOR

TNR AND COMPANY

Chartered Accountants

47, Kooduthurai Main Road, T.N. PALAYAM (Po)-638 506.  
Bhavani, Erode-638 301. (T.N)

FRN No: 016669S

PRINCIPAL  
PRINCIPAL

JKK MUNIRAJAH COLLEGE  
OF TECHNOLOGY

T.N. PALAYAM (Po)-638 506.

GOBI (Tk), ERODE (Dt).

UDIN : 24018353BKCEVB4522

DATE : 16-02-2024

PRINCIPAL

JKK MUNIRAJAH COLLEGE  
OF TECHNOLOGY

T.N. PALAYAM (Po)-638 506.

GOBI (Tk), ERODE (Dt).

Bhavani (H.O.)  
94432 60759

Erode (Br)  
90432 50307

Salem (Br)  
90037 12789

Bangalore (Br)  
97894 61632

E-mail : tnroffice@gmail.com



To

12.08.2022

The principal,  
J.K.K Munirajah College of Technology,  
T.N. palayam,  
Erode - 638506.

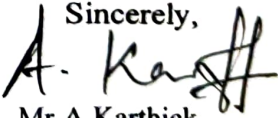
Respected Sir,

**Sub: Requesting R&D- Collaboration project –Automated Inter-Patient seizure Detection using Multichannel Convolutional and Recurrent Neural Network- reg.**


Amypo technologies stands as the No.1 Software Company in Coimbatore. It also aims to make the company much more than an average rural BPO, rather a rurally-grounded innovative business that will continue to offer more services and serve more customers while producing wealth in the Indian rural economy.

In collaboration with an Educational Institution, we are planning to work out the project of 'Automated Inter-Patient seizure Detection using Multichannel Convolutional and Recurrent Neural Network'. We like to work this project with collaboration of your Institution. As we are aware of JKK Munirajah college of Technology and faculty members of Information Technology have experience in research related activities.

We are seeking for your positive and earliest reply.

Sincerely,  
  
Mr.A.Karthick

Senior Manager IT,  
Amypo Technologies.

  
PRINCIPAL  
JKK MUNIRAJAH COLLEGE  
OF TECHNOLOGY  
T.N. PALAYAM (P.O)-638 506.  
GOBI (TK), ERODE (Dt).

AMYPO TECHNOLOGIES,  
72/459, Ganapathy,  
Coimbatore - 641 006.

72/459, Ganapathy, Coimbatore -641006  
<https://www.amypo.com/>





ISO 9001:2015 Certified Institution  
**J.K.K.MUNIRAJAH COLLEGE OF TECHNOLOGY**  
(Approved by AICTE, New Delhi and Affiliated to Anna University, Chennai)

**Smt.M.VASANTHAKUMARI**  
Chairman & Managing Trustee

**Smt.M.KASTHURIPRIYA MBA.**  
Secretary

**Dr.K.SRIDHARAN Ph.D.**  
Principal

To

23.8.2022

Mr.A.Karthick  
Senior Manager IT,  
Ampo Technologies,  
Coimbatore.

Respected sir,

**Sub:** Research and development collaboration –Reg.Ref: DC/RD/IT/JKKMCT/dated 12.08.2022.

Good wishes! With immense happiness, we acknowledge your letter dated 12.08.2022 and we very glad and proud to accept your company's project proposal. We are thankful to your peer members for selecting our institution for the funded project. We, the team of J K K Munirajah College of technology have knowledgeable faculty members in academic, research and development areas. We assure that, we will give required technical support for the successful completion of "Automated Inter-Patient seizure Detection using Multichannel Convolutional and Recurrent Neural Network". We are expecting the specifications, terms and conditions and duration of the projects to proceed further.


We would like to acknowledge that, we have received the project specifications. We have expert faculty members interested to work in the specified area as a team for the proposed project and their profiles have been enclosed. The proposed project is entitled as 'Automated Inter-Patient seizure Detection using Multichannel Convolutional and Recurrent Neural Network' besides, we have also enclosed the Plan of work, financial details and faculty requirements. We also request you to please depute one technical person who can handle the day to day problems of this project for discussion. We are looking forward to explore with you.

Encl:

1. List of faculty members with their profile.
2. Execution plan for project work.
3. Financial details and Facilities required for completion of project.

  
**PRINCIPAL**  
**JKK MUNIRAJAH COLLEGE**  
**OF TECHNOLOGY**  
**T.N. PALAYAM (Po)-638 508.**  
**GOBI (Tk), ERODE (Dt).**

With warm wishes,

  
**PRINCIPAL**  
**JKK MUNIRAJAH COLLEGE**  
**OF TECHNOLOGY**  
**T.N. PALAYAM (Po)-638 5**  
**GOBI (Tk), ERODE (Dt)**



# J.K.K.MUNIRAJAH COLLEGE OF TECHNOLOGY

(Approved by AICTE, New Delhi and Affiliated to Anna University, Chennai)

ISO 9001:2015 Certified Institution

**Smt.M.VASANTHAKUMARI**  
Chairman & Managing Trustee

**Smt.M.KASTHURIPRIYA MBA,**  
Secretary

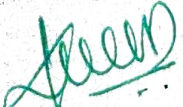
**Dr.K.SRIDHARAN Ph.D.,**  
Principal

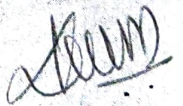
## DEPARTMENT OF INFORMATION TECHNOLOGY

### FACULTY DETAILS

The following are the faculty members are involved in the project entitled 'Automated Inter-Patient seizure Detection using Multichannel Convolutional and Recurrent Neural Network'

S.NO	NAME	DESIGNATION	AREA OF INTEREST
1.	Mrs.P.SANGEETHA	AP/IT	Cloud Computing, Software Engineering, Theory of Computation
2.	Mr.A.SAMPATH KUMAR	AP/IT	MAT LAB, Computer Networks, DBMS.

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

With warm wishes  
  
**PRINCIPAL**  
**PRINCIPAL**  
JKK MUNIRAJAH COLLEGE  
OF TECHNOLOGY  
T.N. PALAYAM (Po)-638 506  
GOBI (TK), ERODE (Dt).



# J.K.K.MUNIRAJAH COLLEGE OF TECHNOLOGY

ISO 9001:2015 Certified Institution

(Approved by AICTE, New Delhi and Affiliated to Anna University, Chennai)


**Smt.M.VASANTHAKUMARI**  
Chairman & Managing Trustee

**Smt.M.KASTHURIPRIYA MBA.,**  
Secretary

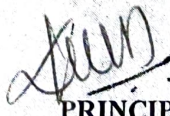
**Dr.K.SRIDHARAN Ph.D.,**  
Principal

## EXECUTION PLAN

Sl. No	Plan	Duration
1.	Data collection and review	1 months
2.	Prototype development	2 months
3.	Prototype testing	2 months
4.	Software development	2 months
5.	Software testing	1months
Duration required for completion of the project		8 months

  
**PRINCIPAL**  
JKK MUNIRAJAH COLLEGE  
OF TECHNOLOGY  
T.N. PALAYAM (Po)-638 506.  
GOBI (TK), ERODE (DT).

With warm wishes

  
**PRINCIPAL**  
**PRINCIPAL**  
JKK MUNIRAJAH COLLEGE  
OF TECHNOLOGY  
T.N. PALAYAM (Po)-638 506.  
GOBI (TK), ERODE (DT)

Thookanaikenpalayam - 638506, Gobi(TK), Erode(DT), Tamilnadu

Phone: 04285 260754 / 55, Email : principal309@gmail.com, Website:www.jkkmct.edu.in



ISO 9001:2015 Certified Institution  
**J.K.K.MUNIRAJAH COLLEGE OF TECHNOLOGY**  
(Approved by AICTE, New Delhi and Affiliated to Anna University, Chennai)

**Smt.M.VASANTHAKUMARI**  
Chairman & Managing Trustee

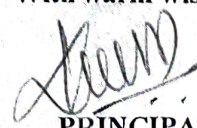
**Smt.M.KASTHURIPRIYA MBA,**  
Secretary

**Dr.K.SRIDHARAN Ph.D.,**  
Principal

FINANCIAL DETAILS

S.No	Item Descriptions	Amount
1.	Desktop	15,000
2.	Software	18,000
3.	Hardware	30,000
4.	Transportation	8000
5.	Miscellaneous	10,000
6.	Testing	10,000
7.	Technical Assistant	22,000
	Total	1,13,000

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

With warm wishes  
  
**PRINCIPAL**  
**PRINCIPAL**  
JKK MUNIRAJAH COLLEGE  
OF TECHNOLOGY



To

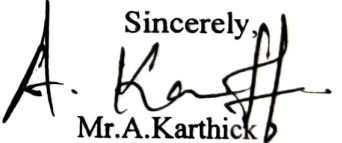
26.08.2022

The principal,  
J.K.K Munirajah College of Technology,  
T.N. palayam,  
Erode - 638506.


Respected Sir,

**Sub:** Approval of budget and execution plan – reg.

We are satisfied with your positive response with reference to the above letter. Our team members thoroughly satisfied with the furnished documents and details that you have sent. The project “Automated Inter-Patient seizure Detection using Multichannel Convolutional and Recurrent Neural Network” has been accepted. Further, Mr.G.Pradeep, Data analyzer of our company will get in touch with you regarding prototype development. Expecting for the successful completion of the project.

Sincerely,  
  
Mr.A.Karthick

Senior Manager IT,  
Amypo Technologies.

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

**AMYPO TECHNOLOGIES,**  
72/459, Ganapathy,  
Coimbatore - 641 006.





ISO 9001:2015 Certified Institution  
**J.K.K.MUNIRAJAH COLLEGE OF TECHNOLOGY**  
(Approved by AICTE, New Delhi and Affiliated to Anna University, Chennai)

**Smt.M.VASANTHAKUMARI**  
Chairman & Managing Trustee

**Smt.M.KASTHURIPRIYA MBA.**  
Secretary

**Dr.K.SRIDHARAN Ph.D.**  
Principal

To

26.03.2023


Mr.A.Karthick  
Senior Manager IT,  
Amypo Technologies,  
Coimbatore.

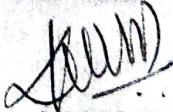
Dear Sir,

**Sub: Completion of Research project- Reg.**

We are pleased to inform you that, we have successfully completed the project work on "Automated Inter-Patient seizure Detection using Multichannel Convolutional and Recurrent Neural Network". Herewith we are sending the modified project source along with the design. We are glad to invite your team to visit the completion of the project in our campus. Hence the project is completed, we request you to please send the amount to "The principal, JKK Munirajah College of Technology"

Looking forward for your response as soon as possible.

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

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



To

22.04.2023

The principal,  
J.K.K Munirajah College of Technology,  
T.N. palayam,  
Erode - 638506.

Respected Sir,


**Sub: Final Review of Product Design – reg.**

In addition to your above reference letter, we are very happy with your research project in question. The members of the peer committee address the work's completion. With respect to the product design and development process, our team members are fully satisfied. If we require any further modification or enhancements, we will intimate you soon. Herewith I am sending the amount Rs 1, 13, 000/-.

Sincerely,

  
Mr.A.Karthick

Senior Manager IT,  
Amypo Technologies.

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

**AMYPO TECHNOLOGIES,**  
72/459, Ganapathy,  
Coimbatore - 641 006.



**AUTOMATED INTER-PATIENT SEIZURE DETECTION USING MULTICHANNEL  
CONVOLUTIONAL AND RECURRENT NEURAL NETWORK  
PROJECT PROPOSAL DOCUMENTS**



**COIMBATORE – 641028**

**Done by**

**Mrs.P.SANGEETHA AP/IT**

**Mr.A.SAMPATH KUMAR AP/IT**

**DEPARTMENT OF INFORMATION TECHNOLOGY**



**2022 – 2023**

A handwritten signature in green ink, appearing to be "S. Sangeetha", is written over the printed name of the principal.

**PRINCIPAL  
JKK MUNIRAJAN COLLEGE  
OF TECHNOLOGY  
T.N. PALAYAM (P.O. 638 506,  
GOBI (Tk), ERODE (Dt).**

## ABSTRACT

We present an end-to-end deep learning model that can automatically detect epileptic seizures in multichannel electroencephalography (EEG) recordings. Our model combines a Convolutional Neural Network (CNN) and a Bidirectional Long Short-Term Memory (BLSTM) network to efficiently mine information from the EEG data using a small number of trainable parameters. Specifically, the CNN learns a latent encoding for each one second window of raw multichannel EEG data. In conjunction, the BLSTM learns the temporal evolution of seizure presentations given the CNN encodings. The combination of these architectures allows our model to capture both the short time scale EEG features indicative of seizure activity as well as the long term correlations in seizure presentations. Unlike most prior work in seizure detection, we mimic an in-patient monitoring setting through a leave-one-patient-out cross validation procedure, attaining an average seizure detection sensitivity of 0.91 across all patients. This strategy verifies that our model can generalize to new patients. We demonstrate that our CNN-BLSTM outperforms both conventional feature extraction methods and state-of-the-art deep learning approaches that rely on larger and more complex network architectures.



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

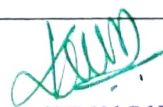
**INVOICE**

(Original)

<b>Core Computers</b> 244, 1 <sup>st</sup> Floor, Lakshmi Complex, Nethaji road, Erode. TIN:33422884107 CST:1044986 E-mail:admin@corecom.in		Invoice no.		Dated.		
		372		18.03.2022		
		Delivery note. -		Mode/Terms of payment: -		
Buyer <b>JKK MUNIRAJAH COLLEGE OF TECHNOLOGY,</b> TNPALAYAM(PO),GOBI(TK), ERODE DT.		Supplier's REF. -		Other Reference's: dilip		
		Dispatch document no.		Dated.		
		Dispatched through.		Dated.		
		Terms of Delivery.				
S.no	Description of Goods	Quantity	Rate	Per	Disc%	Amount
1	DELL LAPTOP Dell inspiron Laptop5567 i7 7 <sup>th</sup> Gen 16GB 2 TB HDD 15.6 Inch Win10+MSO 4GB Graphics Black	1NOS	38,700.00	NOS	-	38,700.00
2	ACTIVATION KEY Sage 50 premium US Edition 2021-5 User (Peachtree)Activation key I Digital Download I SGPTR2021PREM5U	1NOS	21,100.00	NOS	-	21,100.00
	5% - VAT OUT PUT A/C		5	%		2990.00
	TOTAL	2NOS				₹62790.00
Amount Chargeable(in words) <b>Indian Rupees Sixty two thousand seven hundred ninety only</b>						
Declaration. We declare that this invoice shows the actual price of the goods described and that all particulars are true and correct.						



This is a Computer Generated Invoice

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



# TNR & COMPANY

Chartered Accountants

DATE : 16-02-2024

## UTILIZATION CERTIFICATE

Certified that an amount of Rs. 1,13,000/- ( One Lakh Thirteen Thousand Rupees Only) sanctioned during the year 2022-2023 infavour of JKK MUNIRAJAH COLLEGE OF TECHNOLOGY, received from the AMYPO TECHNOLOGIES has been utilized for the purpose of Multichannel Convolutional and Recurrent Neural Network for it was sanctioned and condition of the grants are fulfilled / being fulfilled.

PROJECT INVESTIGATOR

AUDITOR

TNR AND COMPANY  
Chartered Accountants  
47, Kooduthurai Main Road,  
Bhavani, Erode-638 301. (T.N)  
FRN No: 016669S

PRINCIPAL

**PRINCIPAL**

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

**UDIN : 24018353BKCEVC9554**

**DATE : 16-02-2024**

PRINCIPAL

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

Bhavani (H.O.)  
94432 60759

Erode (Br)  
90432 50307

Salem (Br)  
90037 12789

Bangalore (Br)  
97894 61632

E-mail : [tnroffice@gmail.com](mailto:tnroffice@gmail.com)



# AS CONSTRUCTIONS & PROMOTERS

+919688692277  
suyambucivil007@gmail.com  
4, Mariamman Kovil Street,  
Pallipalayam, Kanjikoil-638 116



Ref:AS/R&D/LWPCB/RTC/47

To

Date: 13.06.2022


The Principal,  
JKK Munirajah College of Technology, T.N.Palayam,  
Gobi - 638506.

Sir,


Sub; Requesting R&D- Collaboration project - Manufacture of bricks  
by plastic granules and fly ash -Reg.

We AS Constructions and promoters use extensive research to keep us with the  
upcoming technological innovations and changing trends in the global arena which are  
used to enhance our existing range with new features in civil engineering. The main  
objective is to add the plastic wastes and fly ash 20% with the normal ingredients of  
bricks production with economical as well as less weight .

Economic benefits and at the same time protection of the environment from plastic  
wastes is achieved. Therefore, this work aims to characterize and evaluate the  
possibilities of using the fly Ash wastes and plastic wastes, as additional raw materials  
in the production of Bricks by plastic granules and fly ash.. In this connection, we are  
happy to inform you that our members have selected your esteemed institution to  
precede our research work with your cooperation with and develop our ideas.We are  
waiting for your acknowledgement.

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

**Er. S. SUYAMBU, B.E.,**  
**A.S. CONSTRUCTION &**  
**PROMOTORS**  
4, Mariamman Kovil Street,  
Pallipalayam, Kanjikoil - 638 116.  
Erode Dt. Mobile : 96886 92277,  
E-mail : Suyambucivil007@gmail.com

Sincerely  
  
Er.S.Suyambu  
Proprietor  
AS Constructions &  
Promoters  
Pallipalayam,kanjikoil  
Erode - 638116



ISO 9001:2015 Certified Institution

# J.K.K.MUNIRAJAH COLLEGE OF TECHNOLOGY

(Approved by AICTE, New Delhi and Affiliated to Anna University, Chennai)

**Smt.M.VASANTHAKUMARI**  
Chairman & Managing Trustee

**Smt.M.KASTHURIPRIYA MBA,**  
Secretary

**Dr.K.SRIDHARAN Ph.D.,**  
Principal

To

15.06.2022

Er.S.Suyambu  
Proprietor,  
AS Constructions and Promoters,  
4 ,Mariamman Kovil Street, Pallipalayam,  
Kanjikoil, Erode(Dt) - 638116

Respected sir,

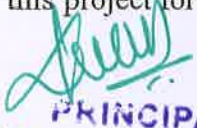
Sub: Research and development collaboration –Reg.

Good wishes! With immense happiness, we feel very glad and proud to accept your company's project proposal. we are thankful to your peer members for selecting our institution for the funded project. we, the team of J K K Munirajah college of technology have knowledgeable faculty members in academic, research and development areas. we assure that ,we will give required technical support for the successful completion of 'MANUFACTURE OF BRICKS BY PLASTIC GRANULES AND FLY ASH.'. We are expecting the specifications, terms and conditions and duration of the projects to proceed further.


We would like to acknowledge that, we have received the project specifications. We have expert faculty members interested to work in the specified area as a team for the proposed project and their profiles have been enclosed. The proposed project is entitled as 'MANUFACTURE OF BRICKS BY PLASTIC GRANULES AND FLY ASH.'. besides, we have also enclosed the Plan of work, financial details and faculty requirements. We also request you to please depute one technical person who can handle the day to day problems of this project for discussion. We are looking forward to explore with you.

Encl:

1. List of faculty members with their Area of Interest
2. Execution plan for project work.
3. Financial details and Facilities required for completion of project.

  
PRINCIPAL  
JKK MUNIRAJAH COLLEGE  
OF TECHNOLOGY  
T.N. PALAYAM (Po)-638 508.  
GOBI (Tk), ERODE (Dt).

With warm wishes,

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



ISO 9001:2015 Certified Institution

# J.K.K.MUNIRAJAH COLLEGE OF TECHNOLOGY

(Approved by AICTE, New Delhi and Affiliated to Anna University, Chennai)

Smt.M.VASANTHAKUMARI  
Chairman & Managing Trustee

Smt.M.KASTHURIPRIYA MBA.,  
Secretary

Dr.K.SRIDHARAN Ph.D.,  
Principal


## DEPARTMENT OF CIVIL ENGINEERING


### FACULTY DETAILS

The following are the faculty members are involved in the project entitled ““MANUFACTURE OF BRICKS BY PLASTIC GRANULES AND FLY ASH.””.

S.NO	NAME	DESIGNATION	AREA OF INTEREST
1.	Mrs.V.MOHANAPRIYA,M.E	HOD/CIVIL	STRUCTURAL ENGINEERING
2.	Mr.R.VENKATESH,M.E	AP/CIVIL	STRUCTURAL ENGINEERING

With Warm Wishes,

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

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



ISO 9001:2015 Certified Institution

# J.K.K.MUNIRAJAH COLLEGE OF TECHNOLOGY

(Approved by AICTE, New Delhi and Affiliated to Anna University, Chennai)

Smt.M.VASANTHAKUMARI  
Chairman & Managing Trustee

Smt.M.KASTHURIPRIYA MBA,  
Secretary

Dr.K.SRIDHARAN Ph.D.,  
Principal

## Execution Plan

Sl.No	Plan	Duration
1.	Data collection and review	2 Months
2.	Prototype development	1 Month
3.	Prototype testing	2 Months
4.	Product development	2 Months
5.	Product Testing	1 Month
Duration Required for Completion of the Project		8 Months

**PRINCIPAL**  
JKK MUNIRAJAH COLLEGE  
OF TECHNOLOGY  
T.N. PALAYAM (Po)-638 508.  
GOBI (TK), ERODE (Dt).

With Warm Wishes,

**PRINCIPAL**  
**PRINCIPAL**  
JKK MUNIRAJAH COLLEGE  
OF TECHNOLOGY



ISO 9001:2015 Certified Institution

# J.K.K.MUNIRAJAH COLLEGE OF TECHNOLOGY

(Approved by AICTE, New Delhi and Affiliated to Anna University, Chennai)

Smt.M.VASANTHAKUMARI  
Chairman & Managing Trustee

Smt.M.KASTHURIPRIYA MBA.,  
Secretary

Dr.K.SRIDHARAN Ph.D.,  
Principal

## FINANCIAL DETAILS

S.No	Item Descriptions	Amount Rs.
1.	Materials	47,250
2.	Man Power	15,250
3.	Transportation	7800
4.	Miscellaneous	7000
5.	Others	12,700
	<b>Total</b>	<b>90,000</b>

With Warm Wishes,

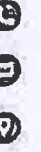
**PRINCIPAL**  
JKK MUNIRAJAH COLLEGE  
OF TECHNOLOGY  
T.N. PALAYAM (Po)-638 508.  
GOBI (Tk), ERODE (Dt).

**PRINCIPAL**  
**PRINCIPAL**  
JKK MUNIRAJAH COLLEGE  
OF TECHNOLOGY  
T.N. PALAYAM (Po)-638 508.  
GOBI (Tk), ERODE (Dt).



# AS CONSTRUCTIONS & PROMOTERS

+919688692277  
suyambucivil007@gmail.com  
4, Mariamman Kovil Street,  
Pallipalayam, Kanjikoll-638 116



Ref:AS/R&D/LWPCB/RTC/63

To  
The Principal,  
JKK Munirajah College of Technology,  
T.N.Palayam,  
Gobi - 638506.

Date: 20.06.2022

Sir,

Sub: Approval of budget and execution for Manufacture of bricks by plastic granules and fly ash -Reg.

Ref : JKKM Dated 17-06-2022

Further to your above reference letter, we are very grateful for your quick response. Our peer members have gone through the details sent and they are completely satisfied with the furnished documents. The project Manufacture of bricks by plastic granules and fly ash has been accepted. We are expecting that this project will be completed with the stipulated time meeting the requirements.

Sincerely

Er.S.Suyambu  
Proprietor  
AS Constructions &  
Promoters  
Pallipalayam,kanjikoil  
Erode - 638116

Er. S. SUYAMBU, B.E.,  
A.S. CONSTRUCTION &  
PROMOTORS  
4, Mariamman Kovil Street,  
Pallipalayam, Kanjikoll - 638 116.  
Erode Dt. Mobile : 96886 92277,  
E-mail : suyambucivil007@gmail.com

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



ISO 9001:2015 Certified Institution

# J.K.K.MUNIRAJAH COLLEGE OF TECHNOLOGY

(Approved by AICTE, New Delhi and Affiliated to Anna University, Chennai)

**Smt.M.VASANTHAKUMARI**  
Chairman & Managing Trustee

**Smt.M.KASTHURIPRIYA MBA.,**  
Secretary

**Dr.K.SRIDHARAN Ph.D.,**  
Principal

To

19.02.2023

Er.S.Suyambu

Proprietor ,

AS Constructions and Promoters,

4 ,Mariamman Kovil Street, Pallipalayam,

Kanjikoil, Erode(Dt) - 638116

Dear sir,

Sub: Completion of Research project- Reg.

We are pleased to inform you that, we have successfully completed the project work on "MANUFACTURE OF BRICKS BY PLASTIC GRANULES AND FLY ASH.". Herewith we are sending the modified project source along with the design. We are glad to invite your team to visit the completion of the project in our campus. Hence the project is completed, we request you to please send the amount to "The principal, JKK Munirajah College of Technology". Looking forward for your response as soon as possible.

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

With Warm Wishes

**PRINCIPAL**  
**PRINCIPAL**  
**JKK MUNIRAJAH COLLEGE**  
**OF TECHNOLOGY**  
**T.N. PALAYAM (Po)-638 50**  
**GOBI (Tk), ERODE (Dt).**



# AS CONSTRUCTIONS & PROMOTERS

+919688692277

suyambucivil007@gmail.com

4, Mariamman Kovil Street,  
Pallipalayam, Kanjikoil-638 116



Ref:AS/R&D/LWPCB/RTC/98

To  
The Principal,  
JKK Munirajah College of Technology,  
T.N.Palayam,  
Gobi - 638506.

Date: 28.02.2023

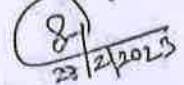
Sir,

Sub: Final Review of project Manufacture of bricks by plastic granules and  
fly ash -Reg.

Ref : JKKM Dated 21 -02 -2023 .

With the above reference letter, we are thoroughly satisfied with your completed research project. The peer committee members are discussing about the completion of the work. Our team members are fully satisfied regarding the design and manufacturing process done with product. If we require any further modifications or enhancements, we will intimate you soon. Here with I am sending the amount of Rs 90000/- Also we are being ready to join hands with you for further collaboration.

Sincerely



Er.S.Suyambu

Proprietor

AS Constructions &

Promoters

Pallipalayam,kanjikoil

Erode - 638116

Er. S. SUYAMBU, B.E.,  
A.S. CONSTRUCTION &  
PROMOTORS  
4, Mariamman Kovil Street,  
Pallipalayam, Kanjikoil - 638 116.  
Erode Dt. Mobile : 96886 92277,  
E-mail : Suyambucivil007@gmail.com



PRINCIPAL  
JKK MUNIRAJAH COLLEGE  
OF TECHNOLOGY  
T.N. PALAYAM (PO)-638 506.

Gobi, JKK, Erode (Dt)

WE BUILD YOUR DREAM

**‘MANUFACTURE OF BRICKS BY PLASTIC  
GRANULES AND FLY ASH.’**

Project Proposal Documents




AS Constructions & Promoters,  
4, Mariamman Kovil Street, Pallipalayam,,  
Kanjikoil, Erode(Dt) - 638116  
Tamilnadu, India.

Done by

Mrs.V.MOHANAPRIYA ,M.E, HOD/CIVIL  
Mr.R.VENKATESH,M.E, Assistant Professor/CIVIL  
Department of Civil Engineering



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

**JKK MUNIRAJAH COLLEGE OF TECHNOLOGY**

**2022 - 2023**

## ABSTRACT



The Project on Manufacture of bricks by plastic granules and fly ash was organized by Department of civil engineering in collaboration with AS Constructions & Promoters, Kanjikoil, Erode. The project started in October 2022 and completed in November 2023. The duration of the project was 8 months. The main objective is to use the environmental wastes such as plastic waste and fly ash in the production of Manufacture of bricks by plastic granules and fly ash. We make use of rice husk waste produced by varying its proportions with 7%, 14%, 21%, 28%, 35% and 42% in partial replacement of M-Sand and 23% of red soil and 27% of clay used for bricks. Economic benefits and at the same time protection of the environment from plastic wastes can be achieved. Therefore this work aims to characterize and evaluate the possibilities of using the rice husk ash wastes, generated by the agricultural lands and plastic waste generated by industries as alternative raw materials in the production of bricks. Their characterization were carried out with the determination of technical analysis. Secondly technological tests were conducted on wastes incorporated brick specimens in order to evaluate the sustainability of addition of wastes in the production of bricks. The results show that these wastes can be added as partial replacement material in the production of bricks.



**PRINCIPAL**

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

## INVOICE

<b>Mahizh Construction</b> No3,Srinivasacomplex,,surampati 4 Road, Erode – 638 009 TIN:22421884209 CST:1333965 E-mail:mahizhconc@gmail.com		Invoice no. 247		Dated. 10.08.2022	
		Delivery note. -		Mode/Terms of payment: -	
		Supplier's REF. -		Other Reference's: Dharmaraj	
<b>Buyer</b> JKK MUNIRAJAH COLLEGE OF TECHNOLOGY, TNPALAYAM(PO),GOBI (TK), ERODE DT.		Dispatch document no.		Dated.	
		Dispatched through.		Dated.	
		Terms of Delivery.			
S.no	Description of Items	Quantity	Rate	Per	Amount
1	M Sand	4 unit	5000.00	-	20,000.00
2	Cement	30 bags	475.00	-	12,000
3	Flyash powder	10Kg	400.00	-	4000.00
4	Plastic waste	3 unit	3000	-	9000.00
					45,000.00
	5% - Value Added Tax OUT PUT A/C		5	%	2250.00
	<b>TOTAL</b>	<b>4 NOS</b>			<b>47250.00</b>
Amount Chargeable(in words) Indian Rupees Thirty Seven thousand Eight hundred only					
 <b>PRINCIPAL</b> JKK MUNIRAJAH COLLEGE OF TECHNOLOGY			For MAHIZH CONSTRUCTION  Proprietor		
T.N. PALAYAM (Po)-638 506. GOBI (Tk), ERODE (Dt).					



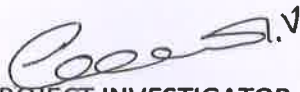
# TNR & COMPANY

Chartered Accountants

DATE : 16-02-2024

## UTILIZATION CERTIFICATE

Certified that an amount of Rs. 90,000/- ( Ninety Thousand Only) sanctioned during the year 2022-2023 infavour of JKK MUNIRAJAH COLLEGE OF TECHNOLOGY, received from the A S CONSTRUCTIONS AND PROMOTERS has been utilized for the purpose of Manufacturing of low bricks by Plastic Granules Fly Ash for it was sanctioned and condition of the grants are fulfilled / being fulfilled.

  
PROJECT INVESTIGATOR

  
AUDITOR

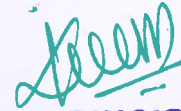
  
PRINCIPAL  
PRINCIPAL

TNR AND COMPANY  
Chartered Accountants  
47, Kooduthurai Main Road,  
Bhavani, Erode-638 301. (T.N)  
FRN No: 016669S

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

UDIN : 24018353BKCEVD3274

DATE : 16-02-2024



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

Bhavani (H.O.)	Erode (Br)	Salem (Br)	Bangalore (Br)
94432 60759	90432 50307	90037 12789	97894 61632

E-mail : tnroffice@gmail.com



## SAKTHI GEAR PRODUCTS



To

Date:09.07.22

The principal  
J.K.K Munirajah College of technology,  
T.N.Palayam  
Erode- 638506

Sir ,

Sub: Requesting R&D - Collaboration project —  
Development of E-waste reinforced aluminium metal  
matrix composite for automobile application –Reg.

Our travel began from 1990. Sakthi Gear Products was founded by Mr. K. Easwaran and K. Shanmuga Sundaram who have expertise knowledge and profound experience in the CNC and machining field for about 30 years. The company started with one central lathe in 1990 and has grown exponentially over the years and now stands with 80 specialized CNC and grinding machines with about 350 employees spanning an area of 1,50,000 sq. ft. Today Sakthi Gear Products serves clients across various sectors and has ventured into exporting parts to international customers. Sakthi Gears Products has been and will continuously strive to be a trustworthy partner by encouraging and practicing a win-win situation.

We were looking for an educational institutional to collaborate. We came to know about JKK Munirajah College of Technology and faculty members of Mechanical Engineering have vast experience in research related activities. In this connection, we are happy to inform you that our members have selected your esteemed institution to precede our research work with your cooperation with and develop our ideas.

We are waiting for your acknowledgement

A.Paramasivan  
General manager,  
Sakthi gear roducts,  
Chinavedampatti post,  
Coimbatore– 638004

  
General Manager  
MR. A.PARAMASIVAN



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





ISO 9001:2015 Certified Institution  
**J.K.K.MUNIRAJAH COLLEGE OF TECHNOLOGY**  
(Approved by AICTE, New Delhi and Affiliated to Anna University, Chennai)

**Smt.M.VASANTHAKUMARI**  
Chairman & Managing Trustee

**Smt.M.KASTHURIPRIYA MBA.**  
Secretary

**Dr.K.SRIDHARAN Ph.D.,**  
Principal

To

Date:16.07.22

A.Paramasivan,  
General manager,  
Sakthi gear roducts,  
Chinavedampatti post,  
Coimbatore- 638004  
Respected Sir,


Sub: Research & Development Collaboration Reg.

Ref: RD/JUL/JKKM/12.


Good wishes! With immense happiness, we acknowledge your letter dated 09-07-2022 and we feel very glad and proud to accept your company's project proposal. We are thankful to your peer members for selecting our institution for the funded project. We, the team of JKK Munirajah College of Technology have knowledgeable faculty members in academic, research and development areas. We assure that, we will give required technical support for the successful completion of ' Design, Development and Production of Remote-Control Forklift Materials Handling'. We are expecting the specifications, terms and conditions and duration of the projects to proceed further.

We have received the project specifications and we would like to acknowledge it. We have expert faculty members interested to work in the specified area as a team for the proposed project and their profiles have been enclosed. The proposed project is entitled as " Development of E-waste reinforced aluminium metal matrix composite for automobile application ". Besides, we have also enclosed the plan of work, financial details and facility requirements. We also request you to; please depute one technical person who can handle the day-to-day problems of this project for discussion.

We are looking forward to explore with you.

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

With warm wishes,

  
**PRINCIPAL**  
**JKK MUNIRAJAH COLLEGE**  
**OF TECHNOLOGY**  
**PALAYAM (Po)-638 506.**  
**GOBI (TK), ERODE (Dt).**

End:

1. List of Faculty members with their profiles
2. Execution plan work
3. Financial details
4. Facility Requirements



# J.K.K. MUNIRAJAH COLLEGE OF TECHNOLOGY

(Approved by AICTE, New Delhi and Affiliated to Anna University, Chennai)

ISO 9001:2015 Certified Institution

Smt.M.VASANTHAKUMARI  
Chairman & Managing Trustee


Smt.M.KASTHURIPRIYA MBA.,  
Secretary

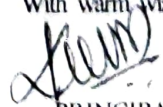
Dr.K.SRIDHARAN Ph.D.,  
Principal

## DEPARTMENT OF AUTOMOBILE ENGINEERING

### AGENDA OF WORK

S.No.	PLAN	CAPBILITIES	DURATION
1.	Solid works software	The piston model is created in the Solidworks software	10 days
2.	Ansys software	The created model is imported to the Ansys Workbench software for doing the analysis.	10 days
3.	Ansys software	Static Structural Analysis is carried out for the imported piston. Analysis is done by using the properties of the materials from the table	1 month
4.	Ansys software	Finite element mesh of the piston is generated using on proximity size function	1 month
5.	Ansys software	Automatic method is used for meshing, in which selection of solid element is done.	1 month
6.	Manufacturing process	As the piston moves from TDC to BDC with the help of the connecting rod fixed at the pinhole, fixed support boundary condition is to be applied at the pinhole	15 days
7.	Final output	Metal matrix composite piston	1 month
Total			5 Months

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

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

**DEPARTMENT OF AUTOMOBILE ENGINEERING**


**FACULTY DETAILS**

The following are the faculty members involved in the project entitled Design, Development of E-waste reinforced aluminium metal matrix composite for automobile application

S.no	Name	Designation	Qualification	Specialization
1.	Mr.M. V.Magesh	HOD	M.E.	Manufacturing Engineering
			B.E	Mechanical Engineering
2.	Mr. V.P.Arulmurugan	AP	M.E.	CAD/CAM
			B.E	Automobile Engineering
3.	Mr.S.Ganesh Kumar	AP	M.E.	Engineering Design
			B.E	Mechanical Engineering

With warm wishes,

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

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



ISO 9001:2015 Certified Institution  
**J.K.K.MUNIRAJAH COLLEGE OF TECHNOLOGY**  
(Approved by AICTE, New Delhi and Affiliated to Anna University, Chennai)

**Smt.M.VASANTHAKUMARI**  
Chairman & Managing Trustee

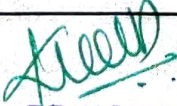
**Smt.M.KASTHURIPRIYA MBA,**  
Secretary

**Dr.K.SRIDHARAN Ph.D.,**  
Principal

DEPARTMENT OF AUTOMOBILE ENGINEERING

REQUIREMENTS FOR THE PROJECT

Sl.No	Facility	Configuration
1.	Air compressor	200 hp
2.	FRL unit	1/8" to 1" / 0-60°C
3.	Pressure regulator and flow valve	2 to 8 Kg/m <sup>2</sup>
4.	Abrasive feeder and mixing chamber	3 to 20 gram /min
5.	Nozzle Working chamber	0.7 to 0.14 mm
6.	Modern accessories and controlling	Ultrasonic sensor ,IR sensor

  
**PRINCIPAL**  
**JKK MUNIRAJAH COLLEGE**  
**OF TECHNOLOGY**  
**T.N. PALAYAM (Po)-638 506.**  
**GObI (TK), ERODE (Dt).**

With warm wishes,



**PRINCIPAL**  
**PRINCIPAL**  
**JKK MUNIRAJAH COLLEGE**



# J.K.K.MUNIRAJAH COLLEGE OF TECHNOLOGY

(Approved by AICTE, New Delhi and Affiliated to Anna University, Chennai)

ISO 9001:2015 Certified Institution

**Smt.M.VASANTHAKUMARI**  
Chairman & Managing Trustee

**Smt.M.KASTHURIPRIYA MBA,**  
Secretary

**Dr.K.SRIDHARAN Ph.D.,**  
Principal

## FINANCIAL DETAILS

S.No	Item Description	Amount Rs.
1	Air compressor	45000
2	FRL unit	25000
3	Pressure regulator and flow valve	5000
4	Abrasive feeder and mixing chamber	5000
5	Nozzle Working chamber	15000
6	Modern accessories and controlling	15000
7	Total	1,10,000

With warm wishes,

PRINCIPAL

**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).



## SAKTHI GEAR PRODUCTS



Ref: RD/JUL/JKKM/01

22-7-2022

To

The Principal,  
JKK Munirajah College of Technology,  
T.N.Palayam,  
Gobi - 638506.

Sir,

Sub: Approval of budget and execution for Design,  
Development of E-waste reinforced aluminium metal matrix composite for automobile application.


Ref : JKKM Dated 16-07-2022

Further to your above reference letter, we are very grateful for your quick response. Our peer members have gone through the details send and they are completely satisfied with the furnished documents. Development of E-waste reinforced aluminium metal matrix composite for automobile application. Further, Mr.M.Sankar Production Engineer of our company can interact with you regarding nature of the machine and constrains during process. We are expecting that this project will be completed with the stipulated time meeting the requirements.  
Sincerely,

A.Paramasivan  
General Manager,  
Sakthi Gear Products,  
Chinaavedampatti post, Coimbatore .

  
General Manager  
Mr. A.PARAMASIVAN



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



ISO 9001:2015 Certified Institution  
**J.K.K.MUNIRAJAH COLLEGE OF TECHNOLOGY**  
(Approved by AICTE, New Delhi and Affiliated to Anna University, Chennai)

**Smt.M.VASANTHAKUMARI**  
Chairman & Managing Trustee

**Smt.M.KASTHURIPRIYA MBA,**  
Secretary

**Dr.K.SRIDHARAN Ph.D.,**  
Principal

To

DATE: 13.12.22

A.Paramasivan  
General Manager,  
Sakthi Gear Products,  
Chinavedampatti post, Coimbatore .


Dear Sir,

Sub: Completion of Research project Development of E-waste reinforced aluminium metalmatrix composite for automobile application - Reg.


Ref: RD/JUL/JKKM/01/ Dated 22.07.2022.

We are pleased to inform you that, we have successfully completed the project work on " Development of E-waste reinforced aluminium metal matrix composite for automobile application ". Here with we are sending the modified design drawing with necessary dimensions of product. We are glad to invite your team to visit the completion of the project in our campus. Hence the project is completed, we request you to please send the amount to "The Principal, J.K.K. Munirajah College of Technology"

Looking forward for your response as soon as possible.

  
**PRINCIPAL**  
JKK MUNIRAJAH COLLEGE  
OF TECHNOLOGY  
T.N. PALAYAM (Po)-638 506.  
GOBI (TK), ERODE (DI).

With warm wishes,

  
**PRINCIPAL**  
**PRINCIPAL**  
JKK MUNIRAJAH COLLEGE  
OF TECHNOLOGY  
T.N. PALAYAM (Po)-638 506.  
GOBI(TK), ERODE (DI).



## SAKTHI GEAR PRODUCTS



To

DATE: 23.12.22

The Principal,  
JKK Munirajah College of Technology,  
T.N.Palayam, Gobi - 638506.

Sub: Completion of Research project Development of E-waste reinforced aluminium metalmatrix composite for automobile application - reg

Ref : JKKM Dated 13 - 12 - 2022 .


With the above reference letter, we are thoroughly satisfied with your completed research project. The peer committee members are discussing about the completion of the work. Our team members are fully satisfied regarding the design and manufacturing process done with product. If we require any further modifications or enhancements, we will intimate you soon. Here with I am sending the amount of Rs 1,10,000/- Also we are being ready to join hands with you for further collaboration.

Sincerely,

A.Paramasivan  
General Manager,  
Sakthi Gear Products,  
Chinavedampatti post, Coimbatore .

  
General Manager  
Mr. A.PARAMASIVAN



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



# **DEVELOPMENT OF E-WASTE REINFORCED ALUMINIUM METAL MATRIX COMPOSITE FOR AUTOMOBILE APPLICATION**

Project Proposal Documents

**SAKTHI GEAR PRODUCTS**

Coimbatore – 641049

Done by

Mr. V.Magesh,, Assistant Professor

Mr. V.P.Arulmurugan, Assistant Professor


Mr . S.Ganesh kumar , Assistant Professor

**DEPARTMENT OF AUTOMOBILE ENGINEERING**



**JKK MUNIRAJAH COLLEGE  
OF TECHNOLOGY**

2022-2023

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

## **ABSTRACT**

Tremendous researches are progressing on Aluminum Matrix composites to get along with extensive use in applications such as automobile, aerospace, marine etc. The present technology demands affordable reinforcement of industrial wastes to produce composite materials. Recent studies have shown that fly ash is one of the industrial wastes for reinforcement along with Aluminum alloys which enhances the mechanical properties. The use of fly ash in Aluminum Alloys reduces the density and improves the strength of composites. In the current study, the results obtained from the reinforcement of fly ash in A356 alloy for various volume percentages are investigated and enhancement in the mechanical properties of automobile application (Piston) is analysed. Variation of structural properties such as deformation and strain variations are obtained. It is observed from the analysis that total deformation, directional deformation and equivalent elastic strain decreases with the addition of fly ash to alloy. It is also seen that as the volume percentage of fly ash increases, deformation decreases and the least deformation is observed for A356 Al C12(S)



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



# TNR & COMPANY

Chartered Accountants

DATE : 16-02-2024


## UTILIZATION CERTIFICATE

Certified that an amount of Rs. 1,10,000/- ( One Lakh Ten Thousand Rupees Only) sanctioned during the year 2022-2023 infavour of JKK MUNIRAJAH COLLEGE OF TECHNOLOGY, received from the SAKTHI GEAR PRODUCTS has been utilized for the purpose of Development of E-Waste reinforced aluminums metal Matrix Composites for Automobile Application for it was sanctioned and condition of the grants are fulfilled / being fulfilled.


  
PROJECT INVESTIGATOR

  
AUDITOR

TNR AND COMPANY  
Chartered Accountants  
47, Kooduthurai Main Road,  
Bhavani, Erode-638 301. (T.N)  
FRN No: 016669S

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

UDIN : 24018353BKCEVE7109  
DATE : 16-02-2024

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

Bhavani (H.O.) | Erode (Br) | Salem (Br) | Bangalore (Br)  
94432 60759 | 90432 50307 | 90037 12789 | 97894 61632

E-mail : tnroffice@gmail.com



# Veejay Lakshmi Engineering Works Ltd.

Ref.: RD/OCT/JKKM/12

Dt: 01-08-2022

To

The Principal,  
JKK Munirajah College of Technology,  
T.N.Palayam,  
Gobi - 638506.

Sir,

Sub: Requesting R&D - Collaboration project — Design, Development of Industrial Flexible Hopper Feeding Mechanism -Reg.

We at Veejay Lakshmi Engineering Works Limited use extensive research to keep us abreast with the upcoming technological innovations and changing trends in the global arena which are used to enhance our existing In plastic injection moulding machine, the provision is to transfer powder raw material from ground to the hopper is not provided or the powder transfer can be done manually in machine. Many industries has moulding machine where they have to fill the raw material at a height where a human efforts are needed which increases the production time rate, leads to increases the wastage of raw materials. Also limited space and hence the system cost increases.

We were looking for an educational institutional to collaborate. We came to know about JKK Munirajah College of Technology and faculty members of Mechanical Engineering have vast experience in research related activities. In this connection, we are happy to inform you that our members have selected your esteemed institution to precede our research work with your cooperation with and develop our ideas.

We are waiting for your acknowledgement

Durairaj. M

General Manager,

Veejay Lakshmi Engineering Works Limited

410/1A1, Kariampalayam,

Coimbatore 641 653

VEEJAY LAKSHMI ENGINEERING WORKS LIMITED,  
410/1A1, Kariampalayam,  
Coimbatore - 641 653.

[www.veejaylakshmi.com](http://www.veejaylakshmi.com)

PRINCIPAL  
JKK MUNIRAJAH COLLEGE  
OF TECHNOLOGY  
T.N. PALAYAM - 638506.

[compsegovt.veejaylakshmi.com](http://compsegovt.veejaylakshmi.com)

Tel: +91 7373045125,  
+91 9751945166

No.2 SF.No. 409/1A, 410/1A1, Kariampalayam, Coimbatore 641 653



ISO 9001:2015 Certified Institution  
**J.K.K.MUNIRAJAH COLLEGE OF TECHNOLOGY**  
(Approved by AICTE, New Delhi and Affiliated to Anna University, Chennai)

**Smt.M.VASANTHAKUMARI**  
Chairman & Managing Trustee

**Smt.M.KASTHURIPRIYA MBA,**  
Secretary

**Dr.K.SRIDHARAN Ph.D.,**  
Principal

To

Dt: 16.08.2022

Durairaj. M  
General Manager,  
Veejay Lakshmi Engineering Works Limited  
410/1A1, Kariampalayam,  
Coimbatore 641 653

Respected Sir,  
Sub: Research & Development Collaboration Reg.

Ref: RD/OCT/JKKM/12.

Good wishes! With immense happiness, we acknowledge your letter dated 01-08-2022 and we feel very glad and proud to accept your company's project proposal. We are thankful to your peer members for selecting our institution for the funded project. We, the team of JKK Munirajah College of Technology have knowledgeable faculty members in academic, research and development areas. We assure that, we will give required technical support for the successful completion of ' Design, Development of Industrial Flexible Hopper Feeding Mechanism'. We are expecting the specifications, terms and conditions and duration of the projects to proceed further.

We have received the project specifications and we would like to acknowledge it. We have expert faculty members interested to work in the specified area as a team for the proposed project and their profiles have been enclosed. The proposed project is entitled as " Design, Development of Industrial Flexible Hopper Feeding Mechanism ". Besides, we have also enclosed the plan of work, financial details and facility requirements.


We also request you to; please depute one technical person who can handle the day-to-day problems of this project for discussion.


We are looking forward to explore with you.

With warm wishes,

End:

1. List of Faculty members with their profiles
2. Execution plan work
3. Financial details
4. Facility Requirements

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

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



ISO 9001:2015 Certified Institution  
**J.K.K.MUNIRAJAH COLLEGE OF TECHNOLOGY**  
(Approved by AICTE, New Delhi and Affiliated to Anna University, Chennai)

**Smt.M.VASANTHAKUMARI**  
Chairman & Managing Trustee

**Smt.M.KASTHURIPRIYA MBA.**  
Secretary

**Dr.K.SRIDHARAN Ph.D.,**  
Principal

DEPARTMENT OF MECHANICAL ENGINEERING

AGENDA OF WORK

S.No.	Plan	Duration
1.	Review on existing machine	10 days
2.	Analysis on existing Method	20 days
3.	CAD modeling	10 days
4.	Design of various methods for material handling	20 days
5.	Analysis of machine components with different operating conditions	10 days
6.	Correction work	20 days
7.	Assembling and rechecking for machine performance	10 days
8.	Final review on design modification	20 days
9.	Assembling Remote-Control Industrial Flexible Hopper Feeding Mechanism	1 months
Duration Required for Completion of the Project		5 months

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

With warm wishes

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



ISO 9001:2015 Certified Institution  
**J.K.K.MUNIRAJAH COLLEGE OF TECHNOLOGY**  
(Approved by AICTE, New Delhi and Affiliated to Anna University, Chennai)

**Smt.M.VASANTHAKUMARI**  
Chairman & Managing Trustee

**Smt.M.KASTHURIPRIYA MBA,**  
Secretary

**Dr.K.SRIDHARAN Ph.D.,**  
Principal

FINANCIAL DETAILS

S.No.	Item Description .	Amount Rs.
1	Electronics	6300
2	Hardware	79000
3	Transportation	1500
4	Miscellaneous	1000
5	Testing	1000
6	Technical Assistant	1200
7	Total	90000

With warm wishes

Principal

**PRINCIPAL**

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

**PRINCIPAL**

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



ISO 9001:2015 Certified Institution  
**J.K.K.MUNIRAJAH COLLEGE OF TECHNOLOGY**  
(Approved by AICTE, New Delhi and Affiliated to Anna University, Chennai)

**Smt.M.VASANTHAKUMARI**  
Chairman & Managing Trustee

**Smt.M.KASTHURIPRIYA MBA.**  
Secretary

**Dr.K.SRIDHARAN Ph.D.**  
Principal

DEPARTMENT OF MECHANICAL ENGINEERING

FACULTY DETAILS

The following are the faculty members involved in the project entitled Design, Development of Industrial Flexible Hopper Feeding Mechanism

S.NO	Name	Designation	Qualification	Specialization
1.	Mr.K.Sriram	HOD	M.E.(First Class)	Thermal Engineering
			B.E.(First Class)	Mechanical Engineering
2.	Mr. V.Magesh	Assistant Professor	M.E.(First Class)	Engineering Design
			B.E.(First Class)	Mechanical Engineering

With warm wishes

Principal

**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).**



ISO 9001:2015 Certified Institution  
**J.K.K.MUNIRAJAH COLLEGE OF TECHNOLOGY**  
(Approved by AICTE, New Delhi and Affiliated to Anna University, Chennai)

**Smt.M.VASANTHAKUMARI**  
Chairman & Managing Trustee

**Smt.M.KASTHURIPRIYA MBA.**  
Secretary

**Dr.K.SRIDHARAN Ph.D.,**  
Principal

DEPARTMENT OF MECHANICAL ENGINEERING  
REQUIREMENTS FOR THE PROJECT

Sl.No	Facility	Configuration
1.	Computer with Net Facility	2 GB RAM, 500 GB HardDisk,i3 processor
2.	AutoCAD	Version 2013

With warm wishes

Principal

**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).



# Veejay Lakshmi Engineering Works Ltd.

Ref: RD/NOV/JKKM/01

03-11-2022

To

The Principal,  
JKK Munirajah College of Technology,  
T.N.Palayam,  
Gobi - 638506.

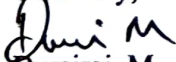
Sir,

Sub: Approval of budget and execution for Design, Development of Industrial Flexible Hopper Feeding Mechanism

Ref : JKKM Dated 16-08-2022

Further to your above reference letter, we are very grateful for your quickresponse. Our peer members have gone through the details send and they are completely satisfied with the furnished documents. The project Design, Development of Industrial Flexible Hopper Feeding Mechanism has been accepted. Further, Mr.M.Prabhakar Production Engineer of our company can interact with you regarding nature of the machine and constrains during process. We are expecting that this project willbe completed with the stipulated time meeting the requirements.

Sincerely,

  
Durairaj. M

General Manager,

Veejay Lakshmi Engineering Works Limited

410/1A1, Kariampalayam,

Coimbatore 641 653

VEEJAY LAKSHMI ENGINEERING WORKS LIMITED,  
410/1A1, Kariampalayam,  
Coimbatore - 641 653.



PRINCIPAL  
JKK MUNIRAJAH COLLEGE  
OF TECHNOLOGY  
T.N. PALAYAM  
638 506.

Tel: +91 7373045125,  
+91 9751945166

[www.veejaylakshmi.com](http://www.veejaylakshmi.com)

[compsec@veejaylakshmi.com](mailto:compsec@veejaylakshmi.com)

No.2 SF.No. 409/1A, 410/1A1, Kariampalayam, Coimbatore 641 653



ISO 9001:2015 Certified Institution  
**J.K.K.MUNIRAJAH COLLEGE OF TECHNOLOGY**  
(Approved by AICTE, New Delhi and Affiliated to Anna University, Chennai)

**Smt.M.VASANTHAKUMARI**  
Chairman & Managing Trustee

**Smt.M.KASTHURIPRIYA MBA,**  
Secretary

**Dr.K.SRIDHARAN Ph.D.,**  
Principal

16-02-2023

To

Durairaj. M

General Manager,

Veejay Lakshmi Engineering Works Limited

410/1A1, Kariampalayam,

Coimbatore 641 653


Dear Sir,

Sub: Completion of Research project Design, Development of Industrial Flexible Hopper Feeding Mechanism - Reg.

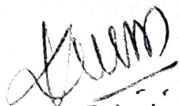
Ref: RD/NOV/JKKM/01/ Dated 03-11-2022.

We are pleased to inform you that, we have successfully completed the project work on "Design, Development of components for Industrial Flexible Hopper Feeding Mechanism". Herewith we are sending the modified design drawing with necessary dimensions of product. We are glad to invite your team to visit the completion of the project in our campus. Hence the project is completed, we request you to please send the amount to "The Principal, J.K.K. Munirajah College of Technology.

Looking forward for your response as soon as possible

  
**PRINCIPAL**  
JKK MUNIRAJAH COLLEGE  
OF TECHNOLOGY  
T.N. PALAYAM (Po)-638 506.  
GOBI (TK), ERODE (DT).

With warm wishes

  
Principal  
**PRINCIPAL**  
JKK MUNIRAJAH COLLEGE

Thookanaikenpalayam - 638506, Gobi(TK), Erode(DT), Tamilnadu

Phone: 04285 260754 / 55 Email: principal309@gmail.com Website: www.jkkmct.edu.in



# Veejay Lakshmi Engineering Works Ltd.

RD/MAR/JKKM/02

01.03.2022

To

The Principal,  
JKK Munirajah College of Technology,  
T.N.Palayam,  
Gobi - 638506.

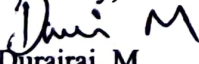
Sir,

Sub: Final Review of product Design, Development of Industrial Flexible Hopper Feeding Mechanism reg

Ref : JKKM Dated 16-02-2023.

With the above reference letter, we are thoroughly satisfied with your completed research project. The peer committee members are discussing about the completion of the work. Our team members are fully satisfied regarding the design and manufacturing process done with product. If we require any further modifications or enhancements, we will intimate you soon. Herewith I am sending the amount of Rs 106500/- Also we are being ready to join hands with you for further collaboration.

Sincerely,

  
Durairaj. M

General Manager,

Veejay Lakshmi Engineering Works Limited

410/1A1, Kariampalayam,

Coimbatore 641 653

VEEJAY LAKSHMI ENGINEERING WORKS LIMITED,  
410/1A1, Kariampalayam,  
Coimbatore - 641 653.



PRINCIPAL

JKK MUNIRAJAN COLLEGE  
OF TECHNOLOGY

T. N. PALAYAM (T.N.)-638 506.  
GOBI (TK), ERODE (DI).

Tel: +91 7373045125,  
+91 9751945166

[www.veejaylakshmi.com](http://www.veejaylakshmi.com)

[compsec@veejaylakshmi.com](mailto:compsec@veejaylakshmi.com)

No.2 SF.No. 409/1A, 410/1A1, Kariampalayam, Coimbatore 641 653

# DESIGN, DEVELOPMENT OF INDUSTRIAL FLEXIBLE HOPPER FEEDING MECHANISM

Project Proposal Documents

VEEJAY LAKSHMI ENGINEERING WORKS LIMITED

Coimbatore 641 653

Done by

Mr.K.Sriram, Assistant Professor

Mr. Mr.V.Magesh, Assistant Professor

Department of Mechanical Engineering



2022-23



**PRINCIPAL**  
JKK MUNIRATHAL COLLEGE  
OF TECHNOLOGY  
T.N. PALAYAM (PO)-638 506.  
GOBI (TK), ERODE (Dt).

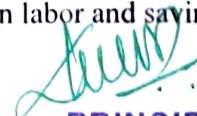
# **DESIGN, DEVELOPMENT OF INDUSTRIAL FLEXIBLE HOPPER FEEDING MECHANISM**

## **ABSTRACT**

Technological advancements are taking place day-by-day and industrial growth has been the key aspect of development of any nation. In plastic injection moulding machine, the provision is to transfer powder raw material from ground to the hopper is not provided or the powder transfer can be done manually in machine. Many small scale industries has moulding machine where they have to fill the raw material at a height where a human efforts are needed which increases the production time rate, leads to increases the wastage of raw materials. Also limited space and hence the system cost increases. In this paper, design of flexible hopper feeding mechanism is made as per small scale industries need by considering the above constraints and accordingly, theoretical design calculations are made for cone design, mini hopper, material volume.

The three different types of raw materials Polyvinylchloride, Polypropylene, and Polystyrene are selected and testing their total fill time, empty time, mass flow rate, and power consumption rate with respect to height in a design of industrial flexible hopper feeding mechanism.

Technological advancements are taking place day-by- day. Industrial growth has been the key aspect of development of any nation. With increase in development there is an equivalent growth in the demand. This increase in demand forces the small-scale industry to increase the productivity in limited time. A survey of 6 small industries was conducted to get information about the problems due to this increase in demand. During the survey it was observed that material loss during production was common in most industry. Plastic granules (raw material) are the major aspect in any injection molding industry. Wasting of plastic granules is a major loss, since approximately 2kg of plastic is been wasted per day. This accounts for Rs.250/- day of the raw material. This chunk amount of capital cost for an industry is a major loss, since that amount can be contributed to some other aspect of an industry. All this limitation motivated to make amends to make for the loss. Hence, the idea of making an automatic feeding machine was established, to reduce wastage of plastic granules and thereby, decreasing human labor and saving capital.



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

# Invoice

**GSTIN : 07PDUJS4678K1Z4**

Room No 1,62A RVN Lay Out,  
 New Siddhapudur, Tamil Nadu 641044

**BILL TO :** JKK Munirajah College  
 of Technology,  
 T.N.Palayam,  
 Gobi - 638506

INVOICE #	DATE
5896	06-12-2022
CUSTOMER ID	TERMS
598	NET 30 DAYS

DESCRIPTION	QTY	UNIT PRICE	AMOUNT
screw feeder	1	7560	7560
flexible hopper	1	3450	3450
handle material	1	3790	3790
changeovers	1	3510	3510
Over Head Guard	1	12600	12600
Battery	1	10750	10750
Strobe Light	1	15000	15000
BLDC Motor	1	3120	3120
ECU For BLDC	1	1800	1800
Drive Controller	1	4580	4580
Operator Seat	2	5800	11600
Tilt Cylinder Carriage	4	310	1240
<b>THANK YOU FOR YOUR BUSINESS</b>	<b>TOTAL:</b>		<b>79000</b>

Rupees Seventy Nine Thousand Only

**TOTAL:**

**79000**

\*No refund only

\*exchange within 3 Days with actual computer bill

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



# TNR & COMPANY

Chartered Accountants

DATE : 16-02-2024

## UTILIZATION CERTIFICATE

Certified that an amount of Rs. 90,000/- ( Ninety Thousand Rupees Only) sanctioned during the year 2022-2023 infavour of JKK MUNIRAJAH COLLEGE OF TECHNOLOGY, received from the VEEJAY LAKSHMI ENGINEERING WORKS LTD has been utilized for the purpose of Design, Development of Industrial Flexible Hopper Feeding Mechanism for it was sanctioned and condition of the grants are fulfilled / being fulfilled.

PROJECT INVESTIGATOR

AUDITOR

TNR AND COMPANY  
Chartered Accountants  
47, Kooduthurai Main Road,  
Bhavani, Erode-638 301. (T.N)  
FRN No: 016669S

PRINCIPAL  
PRINCIPAL

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

UDIN : 24018353BKCEVF5979

DATE : 16-02-2024

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

Bhavani (H.O.)  
94432 60759

Erode (Br)  
90432 50307

Salem (Br)  
90037 12789

Bangalore (Br)  
97894 61632

E-mail : tnroffice@gmail.com

S M Plaza No 10, 1st Floor No 93,  
Armenian Street, Parrys,  
Chennai - 600001



**Date: 25.11.2022**

To  
The principal,  
J.K.K Munirajah College of Technology,  
T.N. palayam,  
Erode-638506.

Respected Sir,

**Sub: Requesting R&D – Collaboration project – Smart Control System Using Advanced IOT Components Phase- 1- Reg.**

Power Electric Company Private Limited is a private incorporated on 01 June 2012. It is classified as Non-govt Company and is registered at Registrar of Companies, Coimbatore. Its authorized share capital is Rs.15,000,000 and its paid up capital is Rs.14,948,000. It is involved in Manufacture of accumulators, Primary cells and primary batteries.

We were looking for an educational institutional to collaborate. We came to know about J.K.K.Munirajah College of Technology and faculty members of Electrical and Electronics Engineering have vast experience in research related activities. In this connection, we were happy to inform you that our peer members have selected your esteemed institution to precede our research work with your cooperation with and develop our ideas.

We are waiting for your acknowledgement.

**MANAGING DIRECTOR**

Mr. MOHAMMAD ABDUL MUTHALIF

Power Electric Company,

S M Plaza No 10,

1st Floor No 93,

Armenian Street, Parrys,

Chennai – 600001.

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



ISO 9001:2015 Certified Institution  
**J.K.K.MUNIRAJAH COLLEGE OF TECHNOLOGY**  
(Approved by AICTE, New Delhi and Affiliated to Anna University, Chennai)

**Smt.M.VASANTHAKUMARI**  
Chairman & Managing Trustee

**Smt.M.KASTHURIPRIYA MBA.**  
Secretary

**Dr.K.SRIDHARAN Ph.D.,**  
Principal

Date: 01.12.2022

To

Mr. MOHAAMMED ABDUL MUTHALIF

Power Electric Company Private Limited

S M Plaza No 10, 1st Floor No 93,

Armenian Street, Parrys,

Chennai - 600001

Respected Sir,

**Sub:** Research & Development Collaboration Phase-1 Dated 25.11.2022 Reg. Ref: RD/JKKMCT


Good Wishes! With immense happiness, We acknowledge your letter dated 20.11.2022 and we feel very glad and proud to accept your company's project proposal. We are thankful to your peer members for selecting our institution for the funded project. We, the team JKK Munirajah College of Technology have knowledgeable faculty members in academic, research and development areas. We assure that, we will give required technical support for the successful completion of "Smart Control System using Advanced IOT components" we are accepting the specification, terms and conditions and duration of the project to proceed further.


We have received the project specifications and we would like to acknowledge it. We have expert faculty members interested to work in the specified area as a team for the proposed project and their profiles have been enclosed. The proposed project is entitled as "Smart Control System using Advanced IOT components" Besides, we have also enclosed the plan work, financial details and facility requirement. We also request you to; please depute one technical person who can handle the day-to-day problems of this project for discussion.

We are looking forward to explore with you.

Enclosed:

1. List of Faculty members with their profiles.
2. Execution plan work.
3. Financial details and Facilities required for completion of project.

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

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



ISO 9001:2015 Certified Institution  
**J.K.K.MUNIRAJAH COLLEGE OF TECHNOLOGY**  
(Approved by AICTE, New Delhi and Affiliated to Anna University, Chennai)

Smt.M.VASANTHAKUMARI  
Chairman & Managing Trustee

Smt.M.KASTHURIPRIYA MBA,  
Secretary

Dr.K.SRIDHARAN Ph.D.,  
Principal

**DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING**  
**FACULTY DETAILS**

The following are the faculty members involved in the project entitled **Smart Control System Using Advanced IOT Components**.

S.NO	Name	Designation	Area of Interest
1	S.M.Pranesh	Assistant Professor	Principal Investigator
2	Mr. A.Vigneshkumar	Assistant professor	Power Electronics
3	Mr. T.S.Thambiran	Assistant Professor	Power Electronics

With warm wishes

**PRINCIPAL**  
**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).



ISO 9001:2015 Certified Institute  
**J.K.K.MUNIRAJAH COLLEGE OF TECHNOLOGY**  
(Approved by AICTE, New Delhi and Affiliated to Anna University, Chennai)

Smt.M.VASANTHAKUMARI  
Chairman & Managing Trustee

Smt.M.KASTHURIPRIYA MBA.,  
EXECUTION PLAN

Dr.K.SRIDHARAN Ph.D.,  
Principal

S.No	Plan	Duration
1	Data collection and review	2 Months
2	Prototype Development	1 Month
3	Prototype Testing	1 Month
4	Product Development	1 Month
5	Product Testing	1 Month
Duration Required for Completion of the Project		6 Months

With warm wishes

**PRINCIPAL  
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).**



ISO 9001:2015 Certified Institution  
**J.K.K.MUNIRAJAH COLLEGE OF TECHNOLOGY**  
(Approved by AICTE, New Delhi and Affiliated to Anna University, Chennai)

**Smt.M.VASANTHAKUMARI**  
Chairman & Managing Trustee


**Smt.M.KASTHURIPRIYA MBA.**  
Secretary

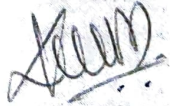
**Dr.K.SRIDHARAN Ph.D.**  
Principal

FINANCIALDETAILS

S.No	Item Description	Amount Rs.
1	IOT Kit	30000
2	Interfacing Kit	10000
3	Miscellaneous	5000
4	Transportation	5000
TOTAL		50000

With warm wishes

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

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

S M Plaza No 10, 1st Floor No 93,  
Armenian Street, Parrys,  
Chennai - 600001



03.12.2022

To

The principal,  
J.K.K Munirajah College of Technology,  
T.N. palayam,  
Erode-638506.

Respected Sir,

**Sub:** Approval of budget and execution plan Phase-1 Ref: JKCMCT/EEE Dated: 01.12.2022.

Further to your above reference letter, we very grateful for quick response. Our peer members have gone through the details send and they are completely satisfied with furnished documents. The project as 'Smart Control System Using Advanced IOT Components' has been accepted. Further, Mr. MOHAMMED ABDUL MUTHALIF Managing director of our company can interact with you regarding nature of the machine and constrains during process. We are expecting that this project will be completed with the stipulated time meeting the requirements.

Sincerely,

Mr. MOHAMMAD ABDUL MUTHALIF

Power Electric Company,

S M Plaza No 10,

1st Floor No 93,

Armenian Street, Parrys,

Chennai – 600001.

**PRINCIPAL**  
JKK MUNIRAJAH COLLEGE  
OF TECHNOLOGY  
T.N. PALAYAM (Po)-638 506.  
GOBI (TK), ERODE (DI).



ISO 9001:2015 Certified Institution  
**J.K.K.MUNIRAJAH COLLEGE OF TECHNOLOGY**  
(Approved by AICTE, New Delhi and Affiliated to Anna University, Chennai)

**Smt.M.VASANTHAKUMARI**  
Chairman & Managing Trustee

**Smt.M.KASTHURIPRIYA MBA.**  
Secretary

**Dr.K.SRIDHARAN Ph.D.**  
Principal

Date: 03.12.2022

To  
Mr. MOHAMMAD ABDUL MUTHALIF  
Power Electric Company,  
S M Plaza No 10,  
1st Floor No 93,  
Armenian Street, Parrys, Chennai – 600001


Dear Sir,


**Sub: Completion of Research project-Reg.**

We are pleased to inform that, we have successfully completed the project work on “**Smart Control System Using Advanced IOT Components**”. Herewith we are sending the modified design drawing with necessary dimensions of products. We are glad to invite your team to visit the completion of the project in our campus. Hence the project is completed, we request you to please send the amount to “The Principal, J.K.K.Munirajah College of Technology”.

Looking forward for your response as soon as possible.

With warm wishes

  
**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).**

12.04.2023

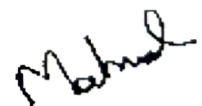
To  
The Principal,  
J.K.K Munirajah College of Technology,  
T.N. Palayam,  
Erode-638506.

Respected Sir,

**Sub: Final Review of Product Design– reg.**


With the above reference letter, we are thoroughly satisfied with your completed research project. The peer committee members are discussing about the completion of the work. Our team members are fully satisfied regarding the design and manufacturing process done with product. If we require any further modifications or enhancements, we will intimate you soon. Herewith I am sending the amount of Rs 50000/- Also we are being ready to join hands with you for further collaboration.

Sincerely,



Mr. MOHAMMAD ABDUL MUTHALIF

Power Electric Company,  
S M Plaza No 10,  
1st Floor No 93,  
Armenian Street, Parrys,  
Chennai – 600001.



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

**SMART CONTROL USING ADVANCED IOT  
COMPONENTS  
PROJECT PROPOSAL DOCUMENT**



**POWER ELECTRIC COMPANY PRIVATE LIMITED  
COIMBATORE**

*Done by*

Mr.S.M.Pranesh, Assistant Professor/EEE

Mr.A.Vigneshkumar, Assistant Professor/EEE

Mr.T.S.Thambiran, Assistant Professor/EEE

**DEPARTMENT OF ELECTRICAL AND ELECTRONICS  
ENGINEERING**

**J.K.K.MUNIRAJAH COLLEGE OF TECHNOLOGY  
T.N.PALAYAM**

**2022-2023**

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

# Smart Control Using Advanced IOT Components

## ABSTRACT

Smart home systems achieved great popularity in the last decades as they increase the comfort and quality of life. Most smart home systems are controlled by smart phones and micro controllers. A smart phone application is used to control and monitor home functions using wireless communication techniques. We explore the concept of smart home with the integration of IOT services and cloud computing to it, by embedding intelligence into sensors and actuators, networking of smart thing using the corresponding technology, facilitating interactions with smart thing using cloud computing for easy access in different locations, increasing computation power, storage space and improving data exchange efficiency. In this chapter we present a composition of three components to build a robust approach of an advanced smart home concept and implementation.



**PRINCIPAL**  
JKK MUNIRAJAH COLLEGE  
OF TECHNOLOGY  
T.N. PALAYAM (PO), DS 506.  
GOBI (TK), ERODE (Dt).

## INVOICE TO:


J.K.K. MUNIRAJAH COLLEGE OF  
TECHNOLOGY  
T.N. PALAYAM (PO),  
GOBI (TK),  
ERODE DT- 638506.

Invoice No:  
610

Date: 12/01/2023

IOT kit	1	20000	20000
IOT Interfacing Kit	1	6000	6000
Rectifier Kit	1	4500	4500
Single Phase Transformer	2	250	500
Connection Legs	50	10	500
		Sub-total:	31500
		Tax 18%:	5670
		<b>Total:</b>	<b>37170</b>

Thank you for purchase!

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



Administrator



# TNR & COMPANY

Chartered Accountants

DATE : 16-02-2024

## UTILIZATION CERTIFICATE

Certified that an amount of Rs. 50,000/- ( Fifty Thousand Rupees Only) sanctioned during the year 2022-2023 infavour of JKK MUNIRAJAH COLLEGE OF TECHNOLOGY, received from the POWER ELECTRIC COMPANY has been utilized for the purpose of smart control system using advance IOT Components Phase - 1 for it was sanctioned and condition of the grants are fulfilled / being fulfilled.

PROJECT INVESTIGATOR

AUDITOR

TNR AND COMPANY  
Chartered Accountants  
47, Kooduthurai Main Road,  
Bhavani, Erode-638 301. (T.N)  
FRN No: 016669S

PRINCIPAL  
PRINCIPAL

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

UDIN : 24018353BKCEVG2781

DATE : 16-02-2024

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

Bhavani (H.O.)  
94432 60759

Erode (Br)  
90432 50307

Salem (Br)  
90037 12789

Bangalore (Br)  
97894 61632

E-mail : tnroffice@gmail.com