

EXPERIMENTAL STUDY ON THE BEHAVIOUR OF RUBBER AGGREGATE CONCRETE REINFORCED WITH GLASS FIBRES

A Project Report

Submitted by

REINA ANN JOY	JEC18CE033
SNEHA THOMAS	JEC18CE045
SRUTHI K U	JEC18CE050
VIJAY JACOB	JEC18CE051

to

APJ Abdul Kalam Technological University

*in partial fulfillment of the requirements for the award of the Degree of
Bachelor of Technology (B.Tech)*

in

CIVIL ENGINEERING

Under the guidance of
Ms. SOORYA M NAIR



CREATING TECHNOLOGY
LEADERS OF TOMORROW
ESTD 2002

DEPARTMENT OF CIVIL ENGINEERING

Jyothi Engineering College
NAAC Accredited College with A++ Accredited Programmes*

Approved by AICTE & affiliated to APJ Abdul Kalam Technological University



A CENTRE OF EXCELLENCE IN SCIENCE & TECHNOLOGY BY THE UNIVERSITY OF APJ ABDUL KALAM
JYOTHI HILLS, VETTIKATTI P.O., CHERUTHURUTHY, THIRISSUR PIN-679531 PH: +91 4884 259000, 274423 FAX: 04884 274777
NBA accredited B.Tech Programmes in Computer Science & Engineering, Electronics & Communication Engineering, Electrical & Electronics Engineering (EEE)
Mechanical Engineering valid for the academic years 2016-2022. NBA accredited B.Tech Programmes in Civil Engineering valid for the academic years 2019-2022.

June 2022

Jose P

Dr. JOSE P THERATTIL
Principal



Jyothi Engineering College

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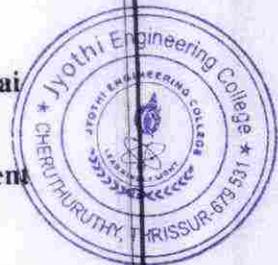
CERTIFICATE

This is to certify that the report entitled " **EXPERIMENTAL STUDY ON THE BEHAVIOUR OF RUBBER AGGREGATE CONCRETE REINFORCED WITH GLASS FIBRES** " submitted by REINA ANN JOY(JEC18CE033), SNEHA THOMAS(JEC18CE045), SRUTHI K U(JEC18CE050), VIJAY JACOB(JEC18CE051) to the APJ Abdul Kalam Technological University in partial fulfillment of the requirements for the award of the Degree in Bachelor of Technology in **Civil Engineering** is a bonafide record of the project work carried out by them under my/our guidance and supervision. This report in any form has not been submitted to any other University or Institute for any purpose.


Ms. Soorya M Nair
Assistant Professor
Internal Supervisor



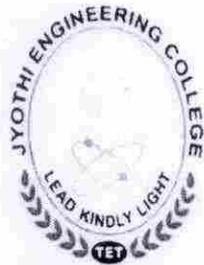

Dr. Jacob Chandapillai
Professor
Head of the Department




Dr. JOSE P THERATTIL
Principal

Jyothi Engineering College

DEPARTMENT OF CIVIL ENGINEERING

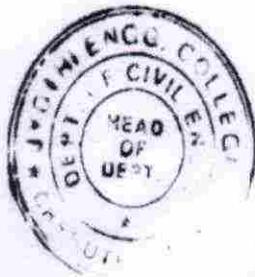


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This is to certify that the report entitled " **STUDY ON EFFECT OF HORIZONTAL CURVE GEOMETRY ON BUS DRIVER WORKLOAD** " submitted by ANAGHA M CHANDRAN(JEC18CE005), ANSARY H(JEC18CE008), P M VIVEK(JEC18CE031), SNEHA BABURAJ(JEC18CE044) to the APJ Abdul Kalam Technological University in partial fulfillment of the requirements for the award of the Degree in Bachelor of Technology in **Civil Engineering** is a bonafide record of the project work carried out by them under my/our guidance and supervision. This report in any form has not been submitted to any other University or Institute for any purpose.

Ms. Jisha Akkara
Assistant Professor
Internal Supervisor



Dr. Jacob Chandapillai
Professor
Head of the Department



Dr. JOSE P THERATTIL
Principal
Jyothi Engineering College
Cheruthuruthy - 679531

REPLACEMENT OF CEMENT AND FINE AGGREGATE
USING GROUND GRANULATED BLAST FURNACE
SLAG AND SUGARCANE BAGASSE ASH TO DEVELOP
GREEN CONCRETE

A Project Report

Submitted by

AKHIL A R	JEC18CE003
GOPIKA M	JEC18CE024
SMIJA S	JEC18CE043
SREEJITH V	JEC18CE047

to

APJ Abdul Kalam Technological University

in partial fulfillment of the requirements for the award of the Degree of

Bachelor of Technology (B.Tech)

in

CIVIL ENGINEERING

Under the guidance of

Ms. NEERAJA P G



CREATING TECHNOLOGY
LEADERS OF TOMORROW
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DEPARTMENT OF CIVIL ENGINEERING

Jyothi Engineering College
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JUNE 2022



Jose P

Dr. JOSE P THERATTIL
Principal
Jyothi Engineering College
Cheruthuruthy - 679311

Jyothi Engineering College

DEPARTMENT OF CIVIL ENGINEERING



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CERTIFICATE

This is to certify that the report entitled " **REPLACEMENT OF CEMENT AND FINE AGGREGATE USING GROUND GRANULATED BLAST FURNACE SLAG AND SUGARCANE BAGASSE ASH TO DEVELOP GREEN CONCRETE** " submitted by AKHIL A R (JEC18CE003), GOPIKA M (JEC18CE024), SMIJA S (JEC18CE043), SREEJITH V (JEC18CE047) to the APJ Abdul Kalam Technological University in partial fulfillment of the requirements for the award of the Degree in Bachelor of Technology in **CIVIL ENGINEERING** is a bonafide record of the project work carried out by them under my/our guidance and supervision. This report in any form has not been submitted to any other University or Institute for any purpose.

Ms. Neeraja P G
Assistant Professor
Internal Supervisor

Dr. Jacob Chandapillai
Professor
Head of Department



Dr. JOSE P THERATTIL
Principal
Jyothi Engineering College
Cherruthuruthy - 679531

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This is to certify that the report entitled " **BRAIN TUMOR DETECTION AND IDENTIFICATION USING DEEP LEARNING** " submitted by ABHIRAM (JEC17CS004), ANJU VINCENT (JEC17CS025), DEEPAK K V (JEC17CS042), and HARIPRASAD C (JEC17CS049) to the APJ Abdul Kalam Technological University in partial fulfillment of the requirements for the award of the Degree in Bachelor of Technology in **Computer Science & Engineering** is a bonafide record of the project work carried out by them under my/our guidance and supervision. This report in any form has not been submitted to any other University or Institute for

Dr. Math R

Project Guide

Associate Professor

Dept. of CSE



Dr. Saju P John

Head of The Dept &

Professor

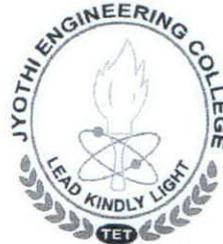
Dept. of CSE

Dr. JOSE P THERATTIL
Principal
Jyothi Engineering College
Cheruthuruthy - 679531

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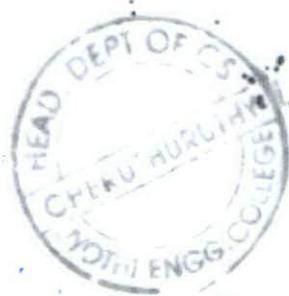


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This is to certify that the report entitled “ **DIAB-EAZE:A MEDICAL CHATBOT** ” submitted by ANILJITH M S(JEC17CS022), CHARLES JOSHY(JEC17CS040), ADITHYAN K (JEC17CS006), and GLADEES C B(JEC17CS046) to the APJ Abdul Kalam Technological University in partial fulfillment of the requirements for the award of the Degree in Bachelor of Technology in **Computer Science & Engineering** is a bonafide record of the project work carried out by them under my/our guidance and supervision. This report in any form has not been submitted to any other University or Institute for any purpose.


Ms. Ninu Francis
Project Guide
Assistant Professor
Dept. of CSE



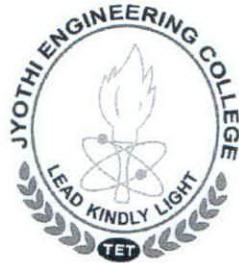

Dr. Saju P John
Head of The Dept
Professor
Dept. of CSE


Dr. JOSE P THERATTIL
Principal
Jyothi Engineering College
Cheruthuruthy - 679531

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CERTIFICATE

This is to certify that the report entitled "**RON - YOUR PERSONAL ASSISTANT**" submitted by AMAL SONY (JEC18CS015), ABIN SANTHOSH ALAPATT (JEC18CS004) & EDWIN T JOY (JEC18CS038) & G RAMGOPAL (JEC18CS043) to the APJ Abdul Kalam Technological University in partial fulfillment of the requirements for the award of the Degree in Bachelor of Technology in **Computer Science & Engineering** is a bonafide record of the project work carried out by them under my/our guidance and supervision. This report in any form has not been submitted to any other University or Institute for any purpose.

Ms. Parvathy Jyothi
Assistant Professor
Internal Supervisor



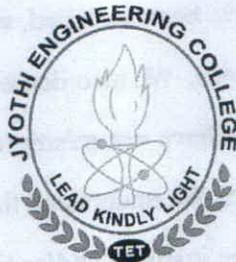
Dr Saju P John
Professor
Head of the Department

Dr. JOSE P THERATTIL
Principal
Jyothi Engineering College
Cheruthuruthy - 679531

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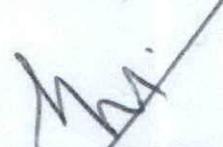
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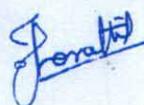
CERTIFICATE

This is to certify that the report entitled “ **BIOMETRIC ATM** ” submitted by ANETTE ANTO(JEC18CS017), ANIT MARY THOMAS(JEC18CS018), AWIN ANTO(JEC18CS030), DELMA SHAJAN(JEC18CS036) to the APJ Abdul Kalam Technological University in partial fulfillment of the requirements for the award of the Degree in Bachelor of Technology in **Computer Science and Engineering** is a bonafide record of the project work carried out by them under my/our guidance and supervision. This report in any form has not been submitted to any other University or Institute for any purpose.


Dr. Swapna B Sasi
Associate Professor
Internal Supervisor



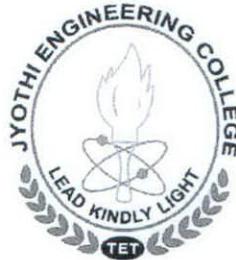

Dr. Saju P John
Associate Professor
Head of the Department


Dr. JOSE P THERATTIL
Principal
Jyothi Engineering College
Cheruthuruthy - 679531

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CERTIFICATE

This is to certify that the report entitled “ **LARVA-TUS** ” submitted by Adarsh Kumar M A(JEC18CS005), Alan George(JEC18CS012), David Salus(JEC18CS034), Harsh KS(JEC18CS046) to the APJ Abdul Kalam Technological University in partial fulfillment of the requirements for the award of the Degree in Bachelor of Technology in **Computer Science and Engineering** is a bonafide record of the project work carried out by them under my/our guidance and supervision. This report in any form has not been submitted to any other University or Institute for any purpose.

for *Job*
Sobha
Mr. Anesh Chandran

Assistant Professor
Internal Supervisor

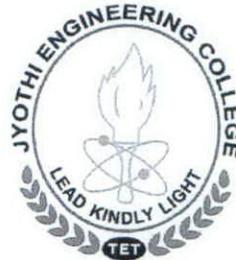
M.A.
Dr. Sajid P John

Associate Professor
Head of the Department

Jose P Therattil

Dr. JOSE P THERATTIL
Principal
Jyothi Engineering College
Cheruthuruthy - 679531

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This is to certify that the report entitled “ **SOCIAL SECURITY IDENTIFICATION CODE** ” submitted by ANTONY ROY(JEC18CS021), ATHIRA KP(JEC18CS029), CHARLES JOHNSON(JEC18CS031), HRIDI KRISHNA H(JEC18CS048) to the APJ Abdul Kalam Technological University in partial fulfillment of the requirements for the award of the Degree in Bachelor of Technology in **COMPUTER SCIENCE & ENGINEERING** is a bonafide record of the project work carried out by them under our guidance and supervision. This report in any form has not been submitted to any other University or Institute for any purpose.

Mr. Thomas George K
Assistant Professor
Internal Supervisor



Dr. Sajju P John.
Associate Professor
Head of the Department

Dr. JOSE P THERATTIL
Principal
Jyothi Engineering College
Cheranthuruthy - 679531

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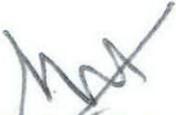
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CERTIFICATE

This is to certify that the report entitled “ **BARBIE WITH BRAIN** ” submitted by **Sangeetha C(JEC18CS022), Ashrul K(JEC18CS027), Athil Pauly(JEC18CS028), James Davis(JEC18CS044)** to the APJ Abdul Kalam Technological University in partial fulfillment of the requirements for the award of the Degree in Bachelor of Technology in **Computer Science and Engineering** is a bonafide record of the project work carried out by them under my/our guidance and supervision. This report in any form has not been submitted to any other University or Institute for any purpose.


Ms Sobha Xavier
Assistant Professor
Internal Supervisor




Dr. Saju P John
Professor
Head of the Department


Dr. JOSE P THERATTIL
Principal
Jyothi Engineering College
Cheruthuruthy - 679531

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CERTIFICATE

This is to certify that the report entitled “ **LAND USE AND LAND COVER CLASSIFICATION AND PREDICTION**” submitted by ADHITHYA KRISHNA S (JEC18CS006), ARJUN VINOD (JEC18CS025), CIYA BABU (JEC18CS033), HELNA THOMAS (JEC18CS047) to the APJ Abdul Kalam Technological University in partial fulfillment of the requirements for the award of the Degree in Bachelor of Technology in **Computer Science & Engineering** is a bonafide record of the project work carried out by them under my guidance and supervision. This report in any form has not been submitted to any other University or Institute for any purpose.



Mr. Anil Antony
Assistant Professor
Internal Supervisor



Dr. Saju P Jhon
Associate Professor
Head of the Department



Dr. JOSE P THERATTIL
Principal
Jyothi Engineering College
Cheruthuruthy - 679531

Jyothi Engineering College

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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

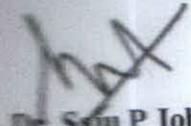


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CERTIFICATE

This is to certify that the student named "SRIJITH" registered by Assistant Krishnan
(Registration No. 19G1EDUCS126) &
has completed the requirements of the Bachelor of Technology in
Computer Science & Engineering in partial fulfillment of the requirements of the Degree of Bachelor of Technology in
Computer Science & Engineering of the Department of Computer Science & Engineering
of Jyothi Engineering College. The project work carried out
by the student named "SRIJITH" is hereby approved. This project in any form has not been
previously submitted for any other purpose.




Dr. Saju P John
Associate Professor
Head of the Department



Dr. JOSE P THERATTIL
Principal
Jyothi Engineering College
Cheruthuruthy - 679531

Jyothi Engineering College

NAAC Accredited college with A++ Accredited programmes

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING



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CERTIFICATE

This is to certify that the report entitled " **EARLY DETECTION OF AUTISM SPECTRUM DISORDER** " submitted by ABHIJITH V J(JEC17CS003), ANNE MARIA NELSON(JEC17CS017), AMAL TOM(JEC17CS018), and BIVIN JAYARAJ(JEC17CS038) to the APJ Abdul Kalam Technological University in partial fulfillment of the requirements for the award of the Degree in Bachelor of Technology in **Computer Science & Engineering** is a bonafide record of the project work carried out by them under my/our guidance and supervision. This report in any form has not been submitted to any other University or Institute for any purpose.


Dr. Anand S U

Project Guide

Professor

Dept. of CSE




Dr. Saju P John

Head of the Dept &

Professor

Dept. of CSE



Dr. JOSE P THERATTIL
Principal

Jyothi Engineering College
Cheruthuruthy - 679531

Jyothi Engineering College

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CERTIFICATE

This is to certify that the report entitled "ALIE - VIRTUAL THERAPIST USING AI" submitted by AAYUSH P REJI(JEC17CS001), AISWARYA SAJEEV(JEC17CS008), ANHILAK S(JEC17CS016) to the APJ Abdul Kalam Technological University in partial fulfillment of the requirements for the award of the Degree in Bachelor of Technology in **Computer Science & Engineering** is a bonafide record of the project work carried out by them under my/our guidance and supervision. This report in any form has not been submitted to any other University or Institute for any purpose.


Ms. Reshma K V
Project Guide
Assistant Professor
Dept. of CSE



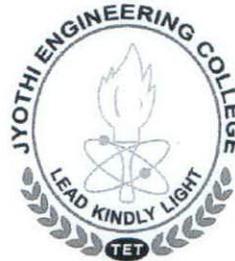

Dr. Sajju P John
Head of the Dept &
Associate Professor
Dept. of CSE


Dr. JOSE P THERATTIL
Principal
Jyothi Engineering College
Cheruthuruthy - 673584

Jyothi Engineering College

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CERTIFICATE

This is to certify that the report entitled “ **RUTAM** ” submitted by Adithya Haridas (JEC18CS007), Anagha Wilson(JEC18CS016), Aravind S Kumar(JEC18CS024), Dilber Sha(JEC18CS037) to the APJ Abdul Kalam Technological University in partial fulfillment of the requirements for the award of the Degree in Bachelor of Technology in **Computer Science and Engineering** is a bonafide record of the project work carried out by them under my/our guidance and supervision. This report in any form has not been submitted to any other University or Institute for any purpose.

Dr. JOSE P THERATTIL
Principal
Jyothi Engineering College
Cheruthuruthy - 679531



Ms.Ninu Francis
Assistant Professor
Internal Supervisor

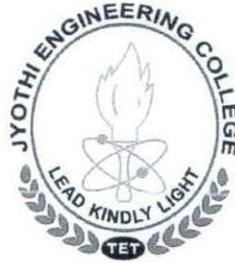


Dr.Saju P John
Professor
Head of the Department

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CERTIFICATE

This is to certify that the report entitled “ **GEO TRACKING OF WASTE** ” submitted by Delicia Reji (JEC18CS035), Emmanuel Shibu(JEC18CS040), Gokul Das M (JEC18S042), to the APJ Abdul Kalam Technological University in partial fulfillment of the requirements for the award of the Degree in Bachelor of Technology in **Computer Science And Engineering** is a bonafide record of the project work carried out by them under my guidance and supervision. This report in any form has not been submitted to any other University or Institute for any purpose.


Ms. SAJITHA I
Assistant Professor
Internal Supervisor



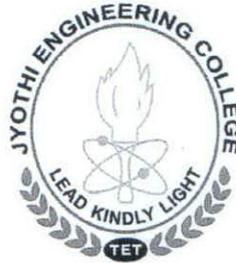

Dr. SAJU P JOHN
Associate Professor
Head of the Department

Dr. JOSE P THERATTIL
Principal
Jyothi Engineering College
Cheruthuruthy - 679531

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CERTIFICATE

This is to certify that the report entitled “ **FLOOD PREDICTION USING MACHINE LEARNING IN GIS** ” submitted by AKASH V (JEC18CS009), AKHIL AZEEZ PEPILAMKUNNATH (JEC18CS010) , APARNA.V (JEC18CS023) , HARISANKER P (JEC18CS045) to the APJ Abdul Kalam Technological University in partial fulfillment of the requirements for the award of the Degree in Bachelor of Technology in **Computer Science & Engineering** is a bonafide record of the project work carried out by them under my/our guidance and supervision. This report in any form has not been submitted in any other University or Institute for any purpose.

Mr. Shaiju Paul
Assistant Professor
Internal Supervisor



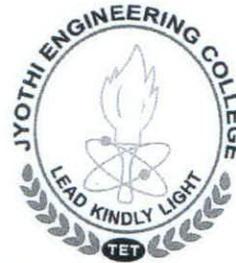
Dr. Saju P John
Associate Professor
Head of the Department

Dr. JOSE P THERATTIL
Principal
Jyothi Engineering College
Cheruthuruthy - 679531

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CERTIFICATE

This is to certify that the report entitled “ **PHISHING SITE DETECTION USING FEDERATED LEARNING**” submitted by AKHIL KRISHNA U K (JEC18CS011), ANNE SEBASTIAN (JEC18CS014) & ANN TEREZA SHAJI (JEC18CS020) to the **Dr. Shival Kalam Technological University** in partial fulfillment of the requirements for the award of the Degree in Bachelor of Technology in **Computer Science & Engineering** and the record of the project work carried out by them under my/our guidance and permission. This report in any form has not been submitted to any other University or Institute for any purpose.



Ms. Sobha Xavier
Assistant Professor
Internal Supervisor



Dr Saja P John
Professor
Head of the Department

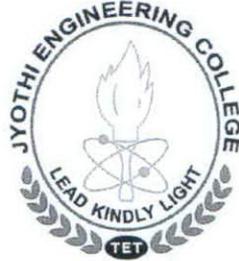


Dr. JOSE P THERATTIL
Principal
Jyothi Engineering College
Cheruthuruthy - 679531

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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING



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CERTIFICATE

This is to certify that the report entitled “ **HEART DISEASE PREDICTION USING MACHINE LEARNING**” submitted by AJMAL BASHEER (JEC18CS008), ALEN MARGHESE (JEC18CS013), CHITILAPPILLY JOVIA JOHNSON (JEC18CS032) & GAATHRI DINESH (JEC18CS041) to the APJ Abdul Kalam Technological University in partial fulfillment of the requirements for the award of the Degree in Bachelor of Technology in **Computer Science & Engineering** is a bonafide record of the project work carried out by them under my/our guidance and supervision. This report in any form has not been submitted to any other University or Institute for any purpose.


Ms. Reshma K V

Assistant Professor
Internal Supervisor




Dr. Saju P John

Professor
Head of the Department


Dr. JOSE P THERATTIL
Principal
Jyothi Engineering College
Cheruthuruthy - 679331

Jyothi Engineering College

(A.A. Accredited college 2015)

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING



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CERTIFICATE

This is to certify that the report entitled " **BLIND NAVIGATION SYSTEM** " submitted by NIBIN THOMAS (JEC18EC023), CATHERIN WILLIAMS (JEC18EC014), CHAITHANYA A B (JEC18EC015) to the APJ Abdul Kalam Technological University in partial fulfillment of the requirements for the award of the Degree in Bachelor of Technology in **ELECTRONICS AND COMMUNICATION** is a bonafide record of the project work carried out by them under my/our guidance and supervision. This report in any form has not been submitted to any other University or Institute for any purpose.

Fr. David Nettikadan
Assistant Professor
Internal Supervisor



Dr. Jose P Tharattil
Professor
Head of the Department

JOSE P THARATTIL
Professor
Jyothi Engineering College
Phy - 179031



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DEPARTMENT OF ELECTRONICS COMMUNICATION ENGINEERING

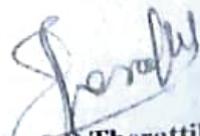


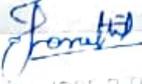
CREATING TECHNOLOGY
LEADERS OF TOMORROW
ESTD 2002

CERTIFICATE

This is to certify that the report entitled " **ELDERLY CARE SYSTEM** " submitted by **AMAL S(JEC18EC006)**, **HRIDHESH KUMAR M.A(JEC18EC019)**, **RAKESH R NAIR(JEC18EC026)**, **RAMEEZ N A(JEC18EC027)** to the APJ Abdul Kalam Technological University in partial fulfillment of the requirements for the award of the Degree in Bachelor of Technology in **Electronics and Communication Engineering** is a bonafide record of the project work carried out by them under my/our guidance and supervision. This report in any form has not been submitted to any other University or Institute for any purpose.


Ms Ambily Francis
Assistant Professor
Internal Supervisor


Dr José P Therattil
Professor
Head of the Department


JOSÉ P THERATTIL
Principal
Jyothi Engineering College
Cheruthuruthy - 679531



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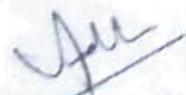
DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

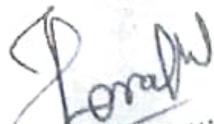


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CERTIFICATE

This is to certify that the report entitled " **FIRE EXTINGUISHER DRONE** " submitted by JIBIN N V(JEC18EC022), RINOY T R(JEC18EC030), SAFA P S(JEC18EC032), SHERAZ E S(JEC18EC038) to the APJ Abdul Kalam Technological University in partial fulfillment of the requirements for the award of the Degree in Bachelor of Technology in **Electronics and Communication Engineering** is a bonafide record of the project work carried out by them under my/our guidance and supervision. This report in any form has not been submitted to any other University or Institute for any purpose.


Dr. Sindhu S
Associate Professor
Internal Supervisor


Dr. Jose P Therattil
Professor
Head of the Department





Dr. JOSE P THERATTIL
Principal
Jyothi Engineering College
Cannur, Kerala - 679531

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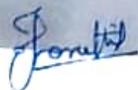
CERTIFICATE

This is to certify that the report entitled " ADAPTIVE TRAFFIC CONTROL SYSTEM " submitted by AKHIL KJ(JEC18EC003), YADU ARAVIND(JEC18EC044), RISHIN XAVIER(JEC18EC009), SADASHIV(JEC18EC001) to the API Abdul Kalam Technological University in partial fulfillment of the requirements for the award of the Degree in Bachelor of Technology in ELECTRONICS AND COMMUNICATION ENGINEERING is a bonafide record of the project work carried out by them under my/our guidance and supervision. This report in any form has not been submitted to any other University or Institute for any purpose.


PONMANI RAJA M
Asst. Professor
Internal Supervisor




JOSE P THERATTIL
Professor
Head of the Department



Dr. JOSE P THERATTIL
Principal
Jyothi Engineering College
Cheruthuruthy - 679531



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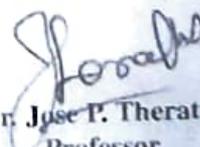
CREATING TECHNOLOGY
LEADERS OF TOMORROW
ESTD 2002

CERTIFICATE

This is to certify that the report entitled " **SIGN LANGUAGE TO VOICE CONVERSION SYSTEM FOR DEAF AND MUTE PEOPLE** " submitted by ANJU KRISHNA P (JEC18EC007), ARCHANA CR (JEC18EC010), ARUN K NARAYAN (JEC18EC011), GAYATHRI MK (JEC18EC018) to the APJ Abdul Kalam Technological University in partial fulfillment of the requirements for the award of the Degree in Bachelor of Technology in **Electronics & Communication Engineering** is a bonafide record of the project work carried out by them under my/our guidance and supervision. This report in any form has not been submitted to any other University or Institute for any purpose.


Dr. Anoop V.
Professor
Internal Supervisor




Dr. Jose P. Therattil
Professor
Head of the Department


Dr. JOSE P. THERATTIL
Professor
Jyothi Engineering College
Coimbatore - 679531

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ESTD 2007

CERTIFICATE

This is to certify that the report entitled " PROTECTION OF DRONE USING ULTRASONIC SENSORS " submitted by P GAUTHAM (JEC18EC024), RESHMI B(JEC18EC028), SALMA MARIYA MICHAEL(JEC18EC034), SIDHARTH M(JEC18EC040) to the APJ Abdul Kalam Technological University in partial fulfillment of the requirements for the award of the Degree in Bachelor of Technology in **Electronics and Communication Engineering** is a bonafide record of the project work carried out by them under my/our guidance and supervision. This report in any form has not been submitted to any other University or Institute for any purpose.

[Signature]
Ms.DRISYA M.K
Assistant Professor
Internal Supervisor

[Signature]
Dr JOSE P THERATTIL
Professor
Head of the Department

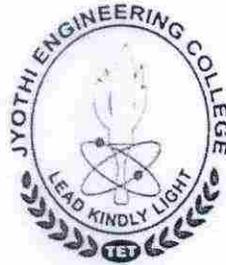


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CERTIFICATE

This is to certify that the report entitled " POWER CONSUMPTION AWARENESS SYSTEM " submitted by ALBIN LORANCE (JEC18EE006), ASWIN KRISHNA KUMAR (JEC18EE010), ATHUL S KRISHNA (JEC18EE011) to the APJ Abdul Kalam Technological University in partial fulfillment of the requirements for the award of the Degree in Bachelor of Technology in Electrical & Electronics Engineering is a bonafide record of the project work carried out by them under my/our guidance and supervision. This report in any form has not been submitted to any other University or Institute for any purpose.

Mr. KAPILDAS KS
Assistant Professor
Internal Supervisor

JITHIN K. JOSE

PROJECT COORDINATOR



Dr. JOSE P THERATTIL
Principal
Jyothi Engineering College
Chennuruthy - 679531

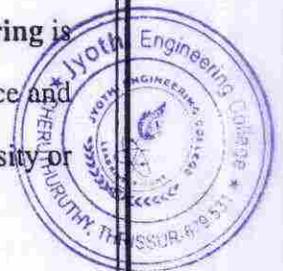
Dr. Jarin T.
Associate Professor
Head of the Department

30/06/2022

External Examiner

P. T. Rajeeva Mo

APJCTU/EE/18/006



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CERTIFICATE

This is to certify that the report entitled "FULLY AUTOMATIC DUAL AXIS SOLAR TRACKER" submitted by AKSHAY P(JEC18EE005), RAHUL S S(JEC18EE022), RENJITH K(JEC18EE023) to the APJ Abdul Kalam Technological University in partial fulfillment of the requirements for the award of the Degree in Bachelor of Technology in Electrical & Electronics Engineering is a bonafide record of the project work carried out by them under my guidance and supervision. This report in any form has not been submitted to any other University or Institute for any purpose.

Jose P
Dr. JOSE P THERATTIL
Principal
Jyothi Engineering College
Cheruthuruthy - 679531



Dr. Jorin T

Associate Professor
Internal Supervisor

Dr. Jorin T

JITHIN K. JOSE



Dr. Jorin T

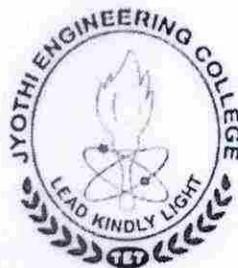
Associate Professor
Head of the Department

Dr. Jorin T
29/16/2022
External Examiner

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ESTD 2002

CERTIFICATE

This is to certify that the report entitled "IMPLEMENTATION OF HEAT EXTRATION MECHANISM FOR ENHANSING SOLAR CELL PERFORMANCE" submitted by SINDA PHILOMIN M B(JEC18EE026), SARASWATHY BOSE(JEC18EE025), KRISHNA VINOD(JEC18EE018), to the APJ Abdul Kalam Technological University in partial fulfillment of the requirements for the award of the Degree in Bachelor of Technology in **Electrical Electronics Engineering** is a bonafide record of the project work carried out by them under my/our guidance and supervision. This report in any form has not been submitted to any other University or Institute for any purpose.

Mr. Jithin K. Jose
Assistant Professor
Internal Supervisor



Dr. Jithin K. Jose
Associate Professor
Head of the Department

JITHIN K. JOSE
PROJECT COORDINATOR

External Examiner

Dr. JOSE P THEKKATTIL
Principal
Jyothi Engineering College
Cheruthuruthy - 679531

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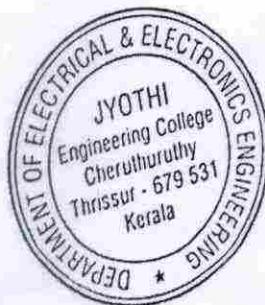
CERTIFICATE

This is to certify that the report entitled "AUTOMATIC HEADLIGHT DIMMER SYSTEM" submitted by ABHINANDH VB(JEC18EE001), AJAY MJ(JEC18EE002), JACKSON PAUL(JEC18EE014) to the APJ Abdul Kalam Technological University in partial fulfillment of the requirements for the award of the Degree in Bachelor of Technology in Electrical & Electronics Engineering is a bonafide record of the project work carried out by them under my guidance and supervision. This report in any form has not been submitted to any other University or Institute for any purpose.



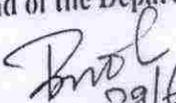

Ms. Anu Sunny

Assistant Professor
Internal Supervisor




Dr. Jatin T.
Associate Professor
Head of the Department


Jithin K. Jose


29/6/2022
External Examiner


Dr. JOSE P THERATTIL
Principal
Jyothi Engineering College
Cheruthuruthy - 679531

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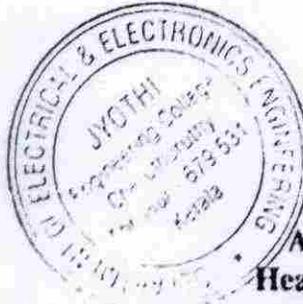
CERTIFICATE

This is to certify that the report entitled “ **HYDROPONICS SMART FARMING**” submitted by Govind(JEC18EE013), Nisam(JEC18EE20), Sourav(JEC18EE027) to the APJ Abdul Kalam Technological University in partial fulfillment of the requirements for the award of the Degree in Bachelor of Technology in **Electrical & Electronics Engineering** is a bonafide record of the project work carried out by them under my guidance and supervision. This report in any form has not been submitted to any other University or Institute for any purpose.

Dr. JOSE THERATTIL
Principal
Jyothi Engineering College
Cheruvu - 679302

Mr. Jenson Jose
Assistant Professor
Internal Supervisor

JITHIN K. JOSE



Dr. Jatin T
Associate Professor
Head of the Department



Dr. P.T. Rajeeva Mo
30/6/2022
AP/EEE/NCE RC

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CERTIFICATE

This is to certify that the report entitled " DETECTION OF PH LEVEL AND SELECTION OF SUITABLE CROP FOR AGRICULTURE " submitted by JACQUILIN FRANCIS(JEC18EE015), LIA JOHNSON(JEC18EE019), PARVATHY VP(JEC18EE021) to the APJ Abdul Kalam Technological University in partial fulfillment of the requirements for the award of the Degree in Bachelor of Technology in Electrical & Electronics Engineering is a bonafide record of the project work carried out by them under my guidance and supervision. This report in any form has not been submitted to any other University or Institute for any purpose.

Jose P Therattil
Dr. JOSE P THERATTIL
Principal
Jyothi Engineering College
Cheruthuruthy - 679531



Aswathy Rajan
Ms. Aswathy Rajan
Assistant Professor
Internal Supervisor



Dr. Jithin T.
Dr. Jithin T.
Associate Professor
Head of the Department

Jithin K. Jose
JITHIN K. JOSE
PROJECT COORDINATOR

P.T. Rajana Me
20/06/2022
External Examiner
P.T. Rajana Me

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NAAC Accredited college with H3 Accredited programmes

DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING



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LEADERS OF TOMORROW
ESTD 2002

CERTIFICATE

This is to certify that the report entitled " IMPROVED DESIGN OF CRACK DETECTING ROBOT IN INDIAN RAILWAY " submitted by AJIL GEORGE(JEC18EE003), AKHIL GILBERT(JEC18EE004), ANFAZ M A(JEC18EE007) to the APJ Abdul Kalam Technological University in partial fulfillment of the requirements for the award of the Degree in Bachelor of Technology in Electrical & Electronics Engineering is a bonafide record of the project work carried out by them under my/our guidance and supervision. This report in any form has not been submitted to any other University or Institute for any purpose.


Dr. Jarin T

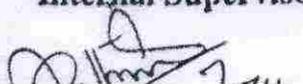
Associate Professor
Internal Supervisor

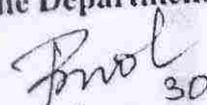



Dr. Jose P Therattil

Associate Professor
Head of the Department


Dr. JOSE P THERATTIL
Principal
Jyothi Engineering College
Cheruthuruthy - 679 531

 V. Jose

 30/06/2022

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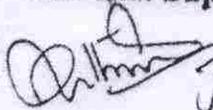
CREATING TECHNOLOGY
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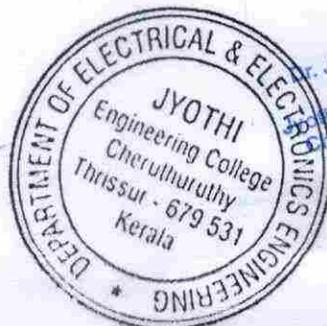
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Dr. Jarin T

Associate Professor
Internal Supervisor

 JITHIN

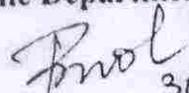
K. JOSE




Dr. JOSEPH THERATTIL
Principal
Jyothi Engineering College
Cheruthuruthy - 679531


Dr. Jarin T.

Associate Professor
Head of the Department


External Examiner
30/06/2020



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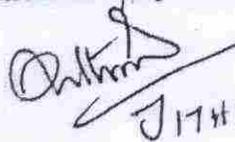
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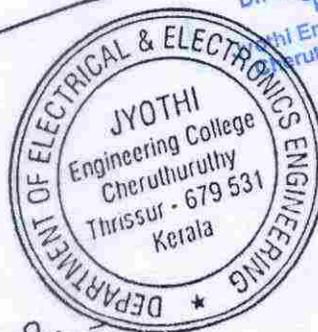
This is to certify that the report entitled "MAGNETIC LEVITATING CEILING FAN" submitted by ANLEYA ANTO(JEC18EE008), DIJO DENNY(JEC18EE012), JOYAL JOY(JEC18EE016) to the APJ Abdul Kalam Technological University in partial fulfillment of the requirements for the award of the Degree in Bachelor of Technology in **Electrical & Electronics Engineering** is a bonafide record of the project work carried out by them under my guidance and supervision. This report in any form has not been submitted to any other University or Institute for any purpose.



Dr. Shijoh V.
Professor
Internal Supervisor


JITHIN K. JOSE

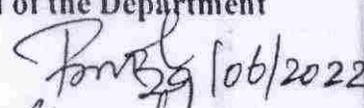
PROJECT COORDINATOR




Dr. JOSE P. THERATTIL
Principal
Jyothi Engineering College
Cheruthuruthy - 679531


Dr. Jariy

Associate Professor
Head of the Department


10/06/2022
External Examiner
P. T. Rajeeva No 1
AP/EEE/INCEPC



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CERTIFICATE

This is to certify that the report entitled " AN IOT INVERTER WITH SMART SWITCHING ACTION" submitted by ARJUN M (JEC18EE007), KEERTHI M (JEC18EE017), YADHU T P (JEC18EE028), to the APJ Abdul Kalam Technological University in partial fulfillment of the requirements for the award of the Degree in Bachelor of Technology in **Electrical & Electronics Engineering** is a bonafide record of the project work carried out by them under my guidance and supervision. This report in any form has not been submitted to any other University or Institute for any purpose.

Mr. Jithin K Jose
Assistant Professor
Internal Supervisor

JITHIN K. JOSE

Dr. JOSE P THERATTIL
Principal
Jyothi Engineering College
Cheruthuruthy - 679531



Associate Professor
Head of the Department

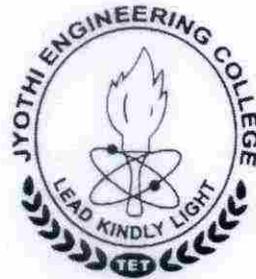


Done 30/06/2022
External Examiner
P.T. Paikena No 1

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DEPARTMENT OF MECHANICAL ENGINEERING



CREATING TECHNOLOGY
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CERTIFICATE

This is to certify that the report entitled "OOBLECK ENHANCED FLEXIBLE BULLETPROOF VEST" submitted by RESHMA UNNIKRIISHNAN(JEC18ME069), RIDHUL PAULY(JEC18ME071), S SREERAG MENON(JEC18ME082) to the APJ Abdul Kalam Technological University in partial fulfillment of the requirements for the award of the Degree in Bachelor of Technology in **Mechanical Engineering** is a bonafide record of the project work carried out by them under my/our guidance and supervision. This report in any form has not been submitted to any other University or Institute for any purpose.

Mr. Nice Menachery
Assistant Professor
Internal Supervisor

External Examiner

Dr. Biju P L
Professor
Head of the Department

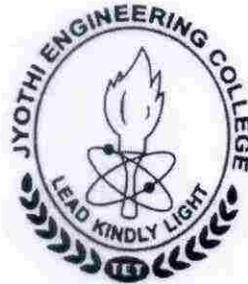


Dr. JOSE P THERATTIL
Principal
Engineering College

Jyothi Engineering College

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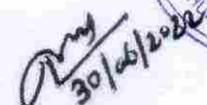
CERTIFICATE

This is to certify that the report entitled " **VEHICLE FUEL THEFT INSPECTION AND MONITORING SYSTEM** " submitted by AKHIL M(JEC18ME009), ALENT LAWRENCE(JEC18ME012), AYMAN(JEC18ME020), HARIHARAN(JEC18ME034) to the APJ Abdul Kalam Technological University in partial fulfillment of the requirements for the award of the Degree in Bachelor of Technology in **Mechanical Engineering** is a bonafide record of the project work carried out by them under my/our guidance and supervision. This report in any form has not been submitted to any other University or Institute for any purpose.


Dr. Deepanraj B

Associate Professor
Internal Supervisor




30/06/2020
External Examiner


Dr. Biju P L

Professor
Head of the Department

Dr. JOSE P THERATTIL
Principal
Jyothi Engineering College
Cheruthuruthy - 679531

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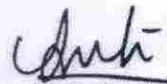
DEPARTMENT OF MECHANICAL ENGINEERING



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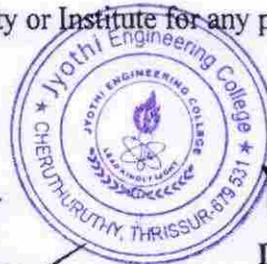
CERTIFICATE

This is to certify that the report entitled " **THERMAL ANALYSIS ON COCONUT FIBRE** " submitted by SHARUN GEORGE(JEC18ME077), MUHAMMED SWAFVAN PUTHANPURAYIL(JEC18ME060), DEEKSHID.B(JEC17ME039), MUHAMMED SHINOS P. M (JEC18ME060) to the APJ Abdul Kalam Technological University in partial fulfillment of the requirements for the award of the Degree in Bachelor of Technology in **Mechanical Engineering** is a bonafide record of the project work carried out by them under my/our guidance and supervision. This report in any form has not been submitted to any other University or Institute for any purpose.


Mr. Anto Zacharias
Assistant Professor
Internal Supervisor


External Examiner

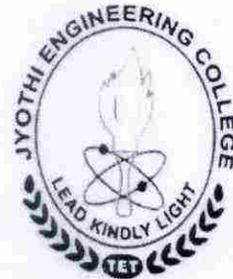

Dr. Biju P
Professor
Head of the Department



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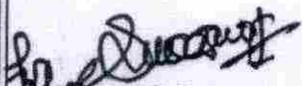
DEPARTMENT OF MECHANICAL ENGINEERING



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LEADERS OF TOMORROW
ESTD 2002

CERTIFICATE

This is to certify that the report entitled " **SOLID LUBRICANT USING EGG SHELL** " submitted by KIRANDAS(JEC18ME051), KIRAN SHELLY(JEC18ME052), R AKSHAY(JEC18ME067) to the APJ Abdul Kalam Technological University in partial fulfillment of the requirements for the award of the Degree in Bachelor of Technology in **Mechanical Engineering** is a bonafide record of the project work carried out by them under my/our guidance and supervision. This report in any form has not been submitted to any other University or Institute for any purpose.


Mr. Suneeth Sukumaran
Assistant Professor
Internal Supervisor


External Examiner


Dr. Biju R.
Professor
Head of the Department




Dr. JOSE P THERATTIL
Principal
Engineering College
Chervuttal - 679531

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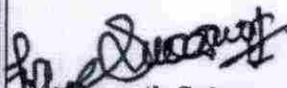
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ESTD 2002

CERTIFICATE

This is to certify that the report entitled " **SOLID LUBRICANT USING EGG SHELL** " submitted by KIRANDAS(JEC18ME051), KIRAN SHELLY(JEC18ME052), R AKSHAY(JEC18ME067) to the APJ Abdul Kalam Technological University in partial fulfillment of the requirements for the award of the Degree in Bachelor of Technology in **Mechanical Engineering** is a bonafide record of the project work carried out by them under my/our guidance and supervision. This report in any form has not been submitted to any other University or Institute for any purpose.


Mr. Suneeth Sukumaran
Assistant Professor
Internal Supervisor


External Examiner


Dr. Biju R.
Professor
Head of the Department

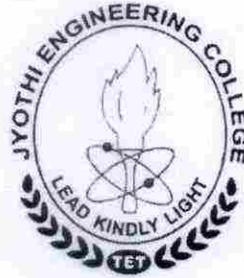



Dr. JOSE P THERATTIL
Principal
Jyothi Engineering College
Cheruthuru - 678534

Jyothi Engineering College

NAAC Accredited college with Accredited programmes

DEPARTMENT OF MECHANICAL ENGINEERING



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LEADERS OF TOMORROW
ESTD 2002

CERTIFICATE

This is to certify that the report entitled “ **PERFORMANCE AND EMISSION TEST OF OXYGEN ENRICHED AIR FOR COMBUSTION IN A DIESEL ENGINE** ” submitted by NIRMAL NIXON(JEC18ME063), PRINCE VK(JEC18ME066), SUJITH CP(JEC18ME083), VYSAKH R(JEC18ME088) to the APJ Abdul Kalam Technological University in partial fulfillment of the requirements for the award of the Degree in Bachelor of Technology in **Mechanical Engineering** is a bonafide record of the project work carried out by them under my/our guidance and supervision. This report in any form has not been submitted to any other University or Institute for any purpose.

Dr. Cijil B John
Assistant Professor
Internal Supervisor



External Examiner

Professor
Head of the Department

Dr. JOSE P THERATTIL
Principal
Engineering College
1953

Jyothi Engineering College

NAAC Accredited college with AIT Accredited programmes

DEPARTMENT OF MECHANICAL ENGINEERING



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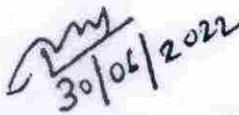
CERTIFICATE

This is to certify that the report entitled “ **AUTOMATIC BUMPER AND BRAKING SYSTEM** ” submitted by ANTONY LLOYD(JEC18ME015), BASIL BABY(JEC18ME021), GOODWIN SUNNY C(JEC18ME032), JERIN ABRAHAM(JEC18ME039) to the APJ Abdul Kalam Technological University in partial fulfillment of the requirements for the award of the Degree in Bachelor of Technology in **Mechanical Engineering** is a bonafide record of the project work carried out by them under my/our guidance and supervision. This report in any form has not been submitted to any other University or Institute for any purpose.




DR. LAWRENCE C A

Associate Professor
Internal Supervisor


30/06/2022
External Examiner

Dr. Biju P L
Professor
Head of the Department


Dr. JOSE P THERATTIL
Principal
Engineering College
679531

Jyothi Engineering College

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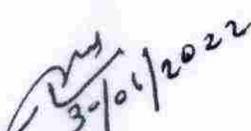


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ESTD 2002

CERTIFICATE

This is to certify that the report entitled " **SPEED BREAKER POWER GENERATOR** " submitted by ABIN MARTIN(JEC18ME003), AKSHAY KUMAR M A (JEC18ME010), JERRY MATHEW KURIAN(JEC18ME040), JOSEPH CHARLY(JEC18ME045) to the APJ Abdul Kalam Technological University in partial fulfillment of the requirements for the award of the Degree in Bachelor of Technology in **Mechanical Engineering** is a bonafide record of the project work carried out by them under my/our guidance and supervision. This report in any form has not been submitted to any other University or Institute for any purpose.


Mr. Melvinraj C.R.
Assistant Professor
Internal Supervisor


3-10/2022
External Examiner


Dr. Biju P L
Professor
Head of the Department




Dr. JOSEPH THEKKATTIL
Principal
Jyothi Engineering College
Cheruthuruthy - 679531

Jyothi Engineering College

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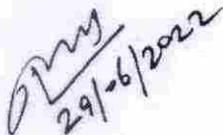


CREATING TECHNOLOGY
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CERTIFICATE

This is to certify that the report entitled “ **COMPUTATIONAL ANALYSIS OF CRACK PROPAGATION IN SPRING AND SUSPENSION COILS** ” submitted by ADDORN JUDE(JEC18ME006), AJIL M A(JEC18ME007), DEEPU THATTIL(JEC18ME024), JINU HAPPY(JEC18ME041) to the APJ Abdul Kalam Technological University in partial fulfillment of the requirements for the award of the Degree in Bachelor of Technology in **Mechanical Engineering** is a bonafide record of the project work carried out by them under my/our guidance and supervision. This report in any form has not been submitted to any other University or Institute for any purpose


Mr. Suneeth Sukumaran
Assistant Professor
Internal Supervisor


29/06/2022
External Examiner



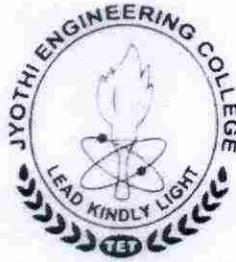
Dr. Biju P L
Professor
Head of the Department


Dr. JOSE P THERATTIL
Principal
Engineering College
- 679531

Jyothi Engineering College

NAAC Accredited college with BPD Accredited programmes

DEPARTMENT OF MECHANICAL ENGINEERING



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CERTIFICATE

This is to certify that the report entitled " **AUTOMATIC VEHICLE OVER SPEED CONTROLLING SYSTEM FOR SCHOOL AND COLLEGE ZONE** " submitted by ARUN GOPAL(JEC18ME017), ARUN V(JEC18ME018), GOKUL T G(JEC18ME031), HARI PRASAD U VARMA(JEC18ME035) to the APJ Abdul Kalam Technological University in partial fulfillment of the requirements for the award of the Degree in Bachelor of Technology in **Mechanical Engineering** is a bonafide record of the project work carried out by them under my/our guidance and supervision. This report in any form has not been submitted to any other University or Institute for any purpose.

Ms. Nisha Sherief
Assistant Professor
Internal Supervisor

21/06/2022

External Examiner

Dr. Biju P L

Professor
Head of the Department



Dr. JOSE P. CHERATTIL
Principal
Jyothi Engineering College
Cheruvu Kuruthy - 679531

Jyothi Engineering College

NAAC Accredited college with ISO Accredited programmes

DEPARTMENT OF MECHANICAL ENGINEERING



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ESTD 2002

CERTIFICATE

This is to certify that the report entitled " **COMPOSITE MATERIAL FROM DRY RUBBER LEAVES** " submitted by AKSHAY P G(JEC18ME011), IRSHAD T A(JEC18ME036), JAGAN T P(JEC18ME038), JITHIN S(JEC18ME043) to the APJ Abdul Kalam Technological University in partial fulfillment of the requirements for the award of the Degree in Bachelor of Technology in **Mechanical Engineering** is a bonafide record of the project work carried out by them under my/our guidance and supervision. This report in any form has not been submitted to any other University or Institute for any purpose.

Mr. Nikhil N S
Assistant Professor
Internal Supervisor

Dr. Biju P L
30/06/2022
External Examiner

Dr. Biju P L
Professor
Head of the Department



Dr. Jose P Therattil
Dr. JOSE P THERATTIL
Principal
Engineering College
Cheruthy - 679531

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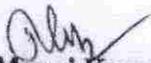
DEPARTMENT OF MECHANICAL ENGINEERING



CREATING TECHNOLOGY
LEADERS OF TOMORROW
ESTD 2002

CERTIFICATE

This is to certify that the report entitled " INVESTIGATION OF VARIATION IN CONDENSATION WITH GEOMETRY OF COOLING TOWER FILTER " submitted by K.VISHNU(JEC18ME053), SAHAL MOHAMED NALAKATH(JEC18ME073), MOHAMMED SHAHIN K.P(JEC18ME057), SAMUEL JOHN(JEC18ME074) to the APJ Abdul Kalam Technological University in partial fulfillment of the requirements for the award of the Degree in Bachelor of Technology in **Mechanical Engineering** is a bonafide record of the project work carried out by them under my/our guidance and supervision. This report in any form has not been submitted to any other University or Institute for any purpose.


Mr. Manoj Kumar V.K.
Assistant Professor
Internal Supervisor


External Examiner


Dr. Biju RL
Professor
Head of the Department

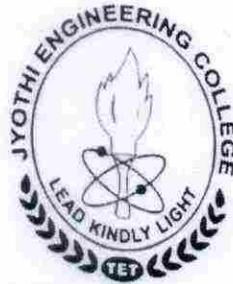

JOSE P THERATTIL
Principal
Jyothi Engineering College
Cherthuruthy - 679531



Jyothi Engineering College

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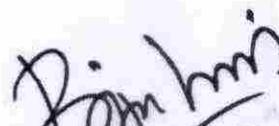
CERTIFICATE

This is to certify that the report entitled " BATTERY MOTORIZED AGRICULTURAL WEEDER " submitted by PRANOY P(JEC18ME065), NIRMAL A(JEC18ME062), MUHAMMED AQEEL(JEC18ME058) to the APJ Abdul Kalam Technological University in partial fulfillment of the requirements for the award of the Degree in Bachelor of Technology in **Mechanical Engineering** is a bonafide record of the project work carried out by them under my/our guidance and supervision. This report in any form has not been submitted to any other University or Institute for any purpose.


Dr. Lawrence C A

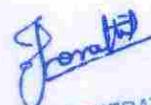
Professor
Internal Supervisor


External Examiner


Dr. Bijal L

Professor
Head of the Department




Dr. JOSE P THERATTIL
Principal
Jyothi Engineering College
Thrissur - 679531

Jyothi Engineering College

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LEADERS OF TOMORROW
ESTD 2002

CERTIFICATE

This is to certify that the report entitled " ENHANCEMENT OF LASER HEATING PROCESS BY LASER HEATING MODIFICATION OF TITANIUM ALLOY " submitted by GOKUL KUMAR C(JEC17ME048), (), () to the APJ Abdul Kalam Technological University in partial fulfillment of the requirements for the award of the Degree in Bachelor of Technology in Mechanical Engineering is a bonafide record of the project work carried out by them under my/our guidance and supervision. This report in any form has not been submitted to any other University or Institute for any purpose.

Dr. GEORGE RAPHEAL

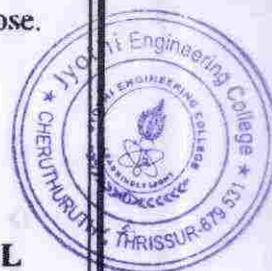
Assistant Professor
Internal Supervisor

Mr. Nice Menachery

Assistant Professor
Seminar Coordinator

Dr. Biju P L

Professor
Head of the Department



Jyothi
Dr. JOSE THERAKTIL
Principal
Jyothi Engineering College
Cheruthuruthy - 679531

Jyothi Engineering College

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ESTD 2002

CERTIFICATE

This is to certify that the report entitled " **DESIGN AND OPTIMIZATION OF IC ENGINE PISTON BY CERAMIC COATING OF PISTON CROWN** " submitted by ABIN K BABU(JEC18ME002), AJO JOSEPH(JEC18ME008), AVIN K THOMAS(JEC18ME019), DILSHAD K A(JEC18ME025) to the APJ Abdul Kalam Technological University in partial fulfillment of the requirements for the award of the Degree in Bachelor of Technology in **Mechanical Engineering** is a bonafide record of the project work carried out by them under my/our guidance and supervision. This report in any form has not been submitted to any other University or Institute for any purpose.



Dr. Cijil B John
Assistant Professor
Internal Supervisor



29/06/2022

External Examiner

Dr. Biju P L

Professor
Head of the Department



Dr. JOSE P THERATTIL
Principal
Engineering College
679 531

Jyothi Engineering College

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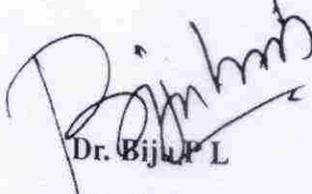
CREATING TECHNOLOGY
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ESTD 2002

CERTIFICATE

This is to certify that the report entitled “ **EFFECT OF SOLID LUBRICANTS ON AA7075 PREPARED BY STIR CASTING METHOD** ” submitted by ARJUN K S(JEC18ME016), FAWAS S(JEC18ME027), JIPIN PRAKASH(JEC18ME042) to the APJ Abdul Kalam Technological University in partial fulfillment of the requirements for the award of the Degree in Bachelor of Technology in **Mechanical Engineering** is a bonafide record of the project work carried out by them under my/our guidance and supervision. This report in any form has not been submitted to any other University or Institute for any purpose.


Mr. Nice Menachery
Assistant Professor
Internal Supervisor


29/06/2022
External Examiner


Dr. Biju P L
Professor
Head of the Department


Dr. JOSE P THERATTIL
Principal
Engineering College
Jyothi Engineering College - 679531

Jyothi Engineering College

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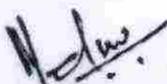
DEPARTMENT OF MECHANICAL ENGINEERING

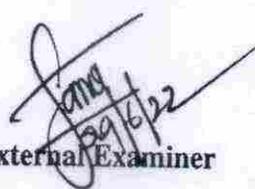


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LEADERS OF TOMORROW
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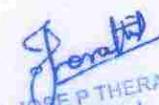
CERTIFICATE

This is to certify that the report entitled " ANALYSIS OF COOLING TOWER FILTER " submitted by RICHARD NELSON(JEC18ME070), SWETHA S(JEC18ME084), VIVEK V K(JEC18ME087) to the APJ Abdul Kalam Technological University in partial fulfillment of the requirements for the award of the Degree in Bachelor of Technology in **Mechanical Engineering** is a bonafide record of the project work carried out by them under my/our guidance and supervision. This report in any form has not been submitted to any other University or Institute for any purpose.


Mr. Melvinraj C R
Assistant Professor
Internal Supervisor


External Examiner


Dr. Biju B L
Professor
Head of the Department


Dr. JOSE P THERATTIL
Principal
Jyothi Engineering College
Cheruthuruthy - 679531



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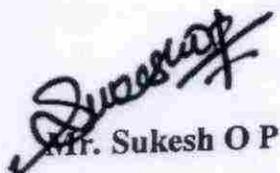
DEPARTMENT OF MECHANICAL ENGINEERING



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LEADERS OF TOMORROW
ESTD 2002

CERTIFICATE

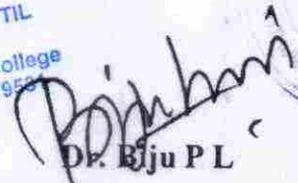
This is to certify that the report entitled " NUMERICAL AND EXPERIMENTAL INVESTIGATION OF DEFECTS FORMATION DURING FRICTION STIR WELDING ON AZ91 " submitted by SANAV S PULIKKAL(JEC18ME075), VISHNU V M(JEC18ME086), JUSTIN JOSE(JEC18ME049), SHEJO SCARIA(JEC18ME078) to the APJ Abdul Kalam Technological University in partial fulfillment of the requirements for the award of the Degree in Bachelor of Technology in **Mechanical Engineering** is a bonafide record of the project work carried out by them under my/our guidance and supervision. This report in any form has not been submitted to any other University or Institute for any purpose.


Mr. Sukesh O P

Assistant Professor
Internal Supervisor


Dr. JOSEY THERATTIL
Principal
Jyothi Engineering College
Cheruthuruthy - 679522

External Examiner


Dr. Biju P L

Professor
Head of the Department

Jyothi Engineering College

NAAC Accredited college with NBA Accredited programmes

DEPARTMENT OF MECHANICAL ENGINEERING



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ESTD 2002

CERTIFICATE

This is to certify that the report entitled “ **OPTIMIZATION ANALYSIS FOR FLOATING OFFSHORE WINDMILL TOWER** ” submitted by ABHINAV RAJ(JEC18ME001), ELBIN FRANCIS(JEC18ME026), GOKUL KRISHNA(JEC18ME030) to the APJ Abdul Kalam Technological University in partial fulfillment of the requirements for the award of the Degree in Bachelor of Technology in **Mechanical Engineering** is a bonafide record of the project work carried out by them under my/our guidance and supervision. This report in any form has not been submitted to any other University or Institute for any purpose.

Dr. George Raphael
30/06/2022
Dr. George Raphael
Associate Professor
Internal Supervisor

Dr. Joseph Therattil
Dr. JOSE P THERATTIL
Principal
Jyothi Engineering College
Cheruthuruthy - 679531

External Examiner

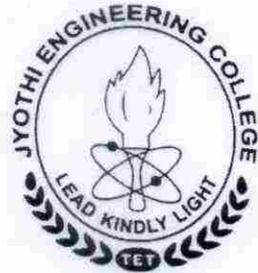


Dr. Biju P L
Professor
Head of the Department

Jyothi Engineering College

NAAC Accredited college with NBA Accredited programmes

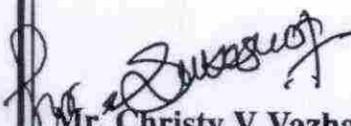
DEPARTMENT OF MECHANICAL ENGINEERING



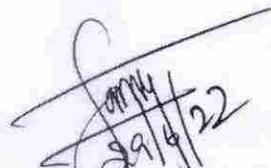
CREATING TECHNOLOGY
LEADERS OF TOMORROW
ESTD 2002

CERTIFICATE

This is to certify that the report entitled “ **FABRICATION OF WELL WEED CLEANING EQUIPMENT** ” submitted by SHIBIN BALACHANDRAN(JEC18ME079), THOMAS NJ(JEC18ME085), SREERAM CP(JEC18ME081), JUSTIN AJ(JEC18ME048) to the APJ Abdul Kalam Technological University in partial fulfillment of the requirements for the award of the Degree in Bachelor of Technology in **Mechanical Engineering** is a bonafide record of the project work carried out by them under my/our guidance and supervision. This report in any form has not been submitted to any other University or Institute for any purpose.


Mr. Christy V Vazhappilly

Assistant Professor
Internal Supervisor


External Examiner


Dr. Biju P L
Professor
Head of the Department




Dr. JOSE P THERAVAL
Principal

Jyothi Engineering College

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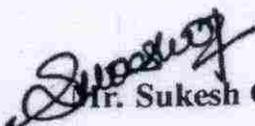
DEPARTMENT OF MECHANICAL ENGINEERING

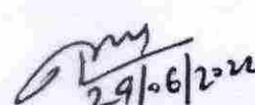


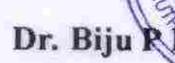
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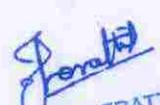
CERTIFICATE

This is to certify that the report entitled " FRICTION STIR WELDING OF ALUMINIUM ALLOY WITH A DISTINCT MATERIAL SANDWICHED IN BETWEEN " submitted by ALJO JOHNSON(JEC18ME013), GIRISANKAR R(JEC18ME029), ABISHEK H(JEC18ME004) to the APJ Abdul Kalam Technological University in partial fulfillment of the requirements for the award of the Degree in Bachelor of Technology in **Mechanical Engineering** is a bonafide record of the project work carried out by them under my/our guidance and supervision. This report in any form has not been submitted to any other University or Institute for any purpose.


Mr. Sukesh OP
Assistant Professor
Internal Supervisor


29/06/2022
External Examiner


Dr. Biju R L
Professor
Head of the Department


Dr. JOSE P THERATTIL
Principal
College



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CERTIFICATE

This is to certify that the report entitled "HELMET DETECTION MODULE FOR RIDER'S SAFETY" submitted by AKASH S MENON (JEC18MC003), ALVIN ANTO (JEC18MC006), ASTIN K SEBY (JEC18MC011), JOSE UKKEN (JEC18MC021) to the APJ Abdul Kalam Technological University in partial fulfillment of the requirements for the award of the Degree in Bachelor of Technology in **Mechatronics Engineering** is a Bonafede record of the seminar work carried out by him under my/our guidance and supervision. This report in any form has not been submitted to any other University or Institute for any purpose.

Mr. Hareesh N V

Assistant Professor
Internal Supervisor



Dr. Vivek Lukose

Associate Professor
Head of the Department



Dr. SURAJ DAMODARAN
Internal Examiner

Dr. JOSE P THERATTIL
Principal
Jyothi Engineering College
Cheruthuruthy - 679531

DEPARTMENT OF MECHATRONICS ENGINEERING



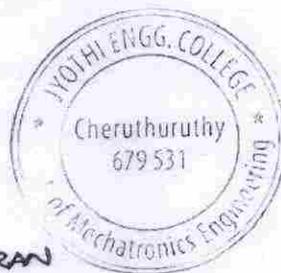
CREATING TECHNOLOGY
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CERTIFICATE

This is to certify that the report entitled "IOT BASED SMART MEDICINE BOX" submitted by GEO V O (JEC18MC018), HAGGIN C SAJEEV (JEC18MC019), SREENATH K BALAN (JEC18MC037), YADHUKRISHNAN C A (JEC18MC040) to the APJ Abdul Kalam Technological University in partial fulfillment of the requirements for the award of the Degree in Bachelor of Technology in **Mechatronics Engineering** is a bonafide record of the seminar work carried out by him under my/our guidance and supervision. This report in any form has not been submitted to any other University or Institute for any purpose.


Mr. N Jeyakkannan
Assistant Professor
Internal Supervisor


Dr. SURAJ DAMODARAN
Internal Examiner




Dr. Vivek Lukose
Associate Professor
Head of the Department




Dr. JOSE THERATTIL
Principal
Jyothi Engineering College
Cheruthuruthy - 679531

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CERTIFICATE

This is to certify that the report entitled " **VARIABLE INTAKE RUNNER** " submitted by ABHISHEK SIMON MATHEW(JEC18MC002) , AKHIL JOESPH(JEC18MC004) ASHIQUE P S(JEC18MC010) , NEVINDAS. P(JEC18MC029) to the APJ Abdul Kalam Technological University in partial fulfillment of the requirements for the award of the Degree in Bachelor of Technology in **MECHATRONICS ENGINEERING** is a bonafide record of the project work carried out by them under my/our guidance and supervision. This report in any form has not been submitted to any other University or Institute for any purpose.

Soumya
28/6/22
Cijil B John
Ms. Soumya C and Dr. Cijil B John

Assistant Professor
Internal Supervisor

[Signature]
Dr. SURAJ DAMODARAN
External Examiner



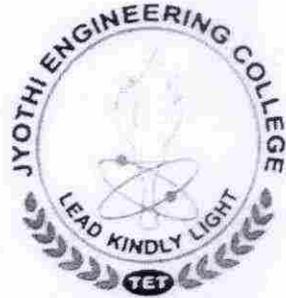
[Signature]
Dr. Vivek Lukose

Professor
Head of the Department



[Signature]
Dr. JOSE P THERATTIL
Principal
Jyothi Engineering College
Cheruthuruthy - 679531

DEPARTMENT OF MECHATRONICS ENGINEERING



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ESTD 2002

CERTIFICATE

This is to certify that the report entitled "D-COPTER" submitted by BASITH ALI(JEC18MC013), EDWIN K BABU(JEC18MC015), JOTHIS R DAAS(JEC18MC022), ROHAN GEORGE JOHN(JEC18MC032) to the APJ Abdul Kalam Technological University in partial fulfillment of the requirements for the award of the Degree in Bachelor of Technology in **Mechatronics Engineering** is a bonafide record of the project work carried out by him under my/our guidance and supervision. This report in any form has not been submitted to any other University or Institute for any purpose.

Dr. C Karthik

Associate Professor
Internal Supervisor



Dr. Vivek Lukose

Associate Professor
Head of the Department



Dr. SURAJ DAMODARAN
Internal Examiner

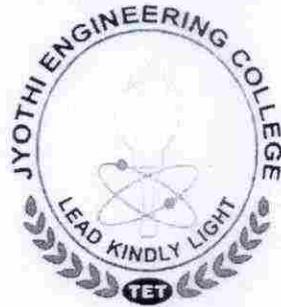
Neethu. M
External Examiner

DR. JOSE P THERATHIL
Principal
Jyothi Engineering College
Cheruthuruthy - 679531

Jyothi Engineering College

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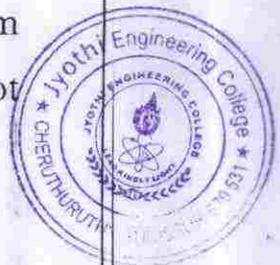
DEPARTMENT OF MECHATRONICS ENGINEERING



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This is to certify that the report entitled "DESIGN OF SEMI AUTOMATIC ROBOT USING RACK AND PINION FOR ROW FARMING IN AGRICULTURE" submitted by ALWIN ANTONY (JEC18MC007), ARUN VINOD (JEC18MC009), JINTO K T (JEC18MC020), SANDEEP DAS (JEC18MC033) to the APJ Abdul Kalam Technological University in partial fulfillment of the requirements for the award of the Degree in Bachelor of Technology in **Mechatronics Engineering** is a bonafide record of the seminar work carried out by him under my/our guidance and supervision. This report in any form has not been submitted to any other University or Institute for any purpose.



Dr. Suraj Damodaran
Associate Professor
Internal Supervisor



Dr. Vivek Lukose
Associate Professor
Head of the Department

DR. SURAJ DAMODARAN
Internal Examiner.

Internal Examiner

Dr. JOSEPH THERATTIL
Principal
Jyothi Engineering College
Cheruthuruthy - 679531

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This is to certify that the report entitled **AUTOMATED BLOOD TYPING DEVICE** submitted by MISHAL PARAVATH (JEC18MC025), SANJAY SAJKUMAR (JEC18MC034), NOEL SAJAN (JEC18MC030), MOHAMMED RIBIN (JEC18MC027), to the APJ Abdul Kalam University in partial fulfillment of the requirements for the award of the degree in Bachelor of Technology in **Mechatronics Engineering** is a bonafide record of the project work carried out by them under our guidance and supervision. This report in any form has not been submitted to any other University or Institute for any purpose.

PROJECT GUIDE

Ms. Shamin E Varkey



Vivek
HEAD OF DEPARTMENT

Dr. Vivek Lukose

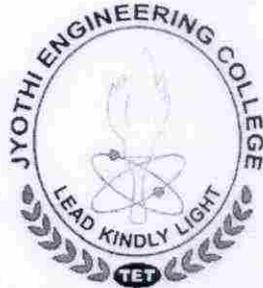


[Signature]
Dr. SURAJ DAMODARAN
Internal Examiner.

[Signature]
External Examiner

[Signature]
Dr. JOSE P THERATTIL
Principal
Engineering College
679531

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This is to certify that the report entitled "UVD MOPPER ROBOT" submitted by
SREEHARI C (JEC18MC036), DOMI LEON (JEC18MC014), ALISHA ROSE
(JEC18MC005), RAHUL K A (JEC18MC031)

to the APJ Abdul Kalam Technological University in partial fulfillment of the requirements
for the award of the Degree in Bachelor of Technology in **Mechatronics Engineering** is a
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supervision. This report in any form has not been submitted to any other University or
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H Rajal
Dr. RAJALAKSHMI M

Associate Professor
Internal Supervisor

[Signature]
Dr. SURAJ DAMODARAN
Internal Examiner



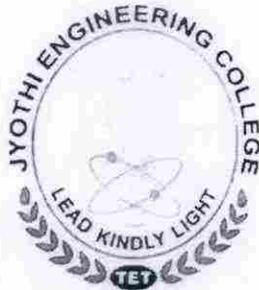
[Signature]

Dr. Vivek Lukose
Associate Professor
Head of the Department



[Signature]
Dr. JAYAPRATHERATTIL
Principal
Jyothi Engineering College
Cheruthuruthy - 679531

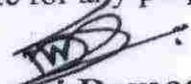
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This is to certify that the report entitled " SILENT AIR PURIFIER USING WATER FILTER & GAS LEAKAGE DETECTION SYSTEM" submitted by Abhijith B (JEC18MC001), Mahmood Faisal (JEC18MC023), Mohammed Jaseel K (JEC18MC026), Susan Jackson (JEC18MC038) to the APJ Abdul Kalam Technological University in partial fulfillment of the requirements for the award of the Degree in Bachelor of Technology in **Mechatronics Engineering** is a bonafide record of the project work carried out by them under my/our guidance and supervision. This report in any form has not been submitted to any other University or Institute for any purpose.


Dr. Suraj Damodaran
Associate Professor
Internal Supervisor


DR SURAJ DAMODARAN
Internal Examiner




Dr. Vivek Lukose
Associate Professor
Head of the Department

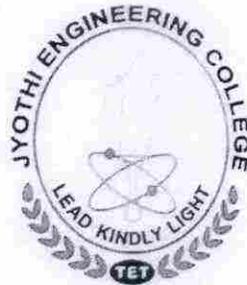



JOSE P THERATTIL
Principal
Jyothi Engineering College
Cheruthuruthy - 679531

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This is to certify that the report entitled " **PENDANT FOR DEAF AND DUMB PEOPLE (UNMUTE)** " submitted by EVIN B THAIKKATTIL(JEC18MC016), FLEGIN GEORGE(JEC18MC017), THOMSON DAVIS(JEC18MC039), ATHUL SYAM(JEC18MC012) to the APJ Abdul Kalam Technological University in partial fulfillment of the requirements for the award of the Degree in Bachelor of Technology in **Mechatronics Engineering** is a bonafide record of the project work carried out by them under my/our guidance and supervision. This report in any form has not been submitted to any other University or Institute for any purpose.

Ms. Nyni K. A.
Assistant Professor
Internal Supervisor



Dr. Vivek Lukose.
Associate Professor
Head of the Department



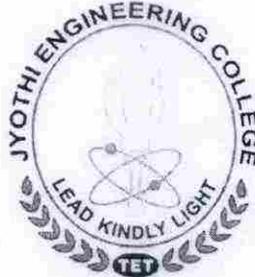
Dr. SURAJ DAMS DARAN
Internal Examiner

Dr. JOSE P THERATTIL
Principal
Jyothi Engineering College
Cheruthuruthy - 679531

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This is to certify that the report entitled " **VEHICLE OVERLOAD DETECTION SYSTEM** " submitted by SAVIO ANTONY (JEC17MC033), ARJUN RAJ (JEC18MC008), MELWIN V G (JEC18MC024), SIJO JOSE (JEC18MC035) to the APJ Abdul Kalam Technological University in partial fulfillment of the requirements for the award of the Degree in Bachelor of Technology in Mechatronics Engineering is a bonafide record of the project work carried out by them under my/our guidance and supervision. This report in any form has not been submitted to any other University or Institute for any purpose.

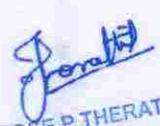

Dr. Anooja Jose Chittilappilly
Associate Professor
Internal Supervisor




Dr. Vivek Lukose
Associate Professor
Head of the Department




Dr. SURAJ DAMODARAN
Internal Examiner


Dr. JOSE P. THERATTIL
Principal
Jyothi Engineering College
Cheruthuruthy - 679531