

REGENT EDUCATION AND RESEARCH FOUNDATION

ELECTRICAL AND ELECTRONIC ENGINEERING



PROJECT REPORT ON ADVANCED FOOTSTEP POWER GENERATION

UNDER THE GUIDANCE OF

DR. SUMAN JANA

SUBMITTED BY

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SUMANT TIWARI 26302820066

ACKNOWLEDGEMENT

The satisfaction and euphoria accompanying the successful completion of any task would be incomplete without mentioning the people whose constant guidance and encouragement made it possible. We take pleasure in presenting before your project, which is the result of a studied blend of knowledge.

We express our earnest gratitude to our internal guide, Professor **DR. SUMAN JANA** Department of EEE, our project guide, for his constant support, encouragement and guidance. We are grateful for his cooperation and his valuable suggestions.

ACKNOWLEDGEMENT

The satisfaction and euphoria accompanying the successful completion of any task would be incomplete without mentioning the people whose constant guidance and encouragement made it possible. We take pleasure in presenting before your project, which is the result of a studied blend of knowledge.

We express our earnest gratitude to our internal guide, Professor **DR. SUMAN JANA** Department of EEE, our project guide, for his constant support, encouragement and guidance. We are grateful for his cooperation and his valuable suggestions.



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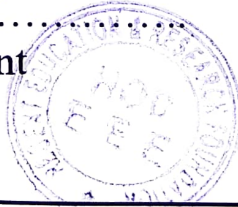
CERTIFICATE OF APPROVAL

This is to certify that the Dissertation entitled “Advance Footstep Power Generation” is the work done by “Mr. Arijit Sarkar”, “Mr. Aquib Zaved”, “Mr. Md Shakib Imam”, “Mr. Mohammed Sajjad Khan”, “Mr. Satyendra Kumar Yadav”, “Mr. Sumant Tiwari” in B. Tech, for the award of degree of “Bachelor of Technology”, at Regent Education & Research Foundation, Barrackpore, under the supervision and guidance of “Mr. Suman Jana” Assistant Professor (EEE) at Regent Education & Research Foundation.

The work is completed and ready for evaluation in partial fulfillment for the award of Bachelor of Technology, under the Maulana Abul Kalam Azad University of Technology, during the academic year 2022-2023.

Amu
27/08/23

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Sign of Head of the Department



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RECOMMENDATION

I hereby recommended that the project title "ADVANCE FOOTSTEP POWER GENERATION" submitted by "Mr. ARIJIT SARKAR", "Mr. AQUIB ZAVED", "Mr. SHAKIB IMAM", "Mr. MOHAMMED SAJJAD KHAN", "Mr. SATYENDRA KUMAR YADAV", " Mr. SUMANT TIWARI" is accepted in partial fulfillment of the requirement for the four years degree of "BACHELOR OF TECHNOLOGY" in "ELECTRICAL & ELECTRONICS ENGINEERING" from the college "REGENT EDUCATION & RESEARCH FOUNDATION" under "MAKAUT".

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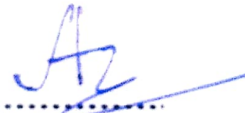
DECLARATION BY CANDIDATE

We hereby declare that the Project Work on “**Advance Footstep Power Generation**” is done by us; Arijit Sarkar, Aquib Zaved, Md Shakib Imam, Mohammed Sajjad Khan, Satyendra Kumar Yadav, Sumant Tiwari submitted to Regent Education & Research Foundation for the requirement of the degree of Bachelor of Technology”, under Maulana Abul Kalam Azad University of Technology, during the academic year of 2022-2023

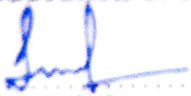
The project work is totally genuine & not copied it from any other sources.



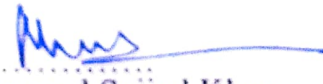
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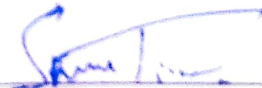
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ABSTRACT

Here we propose an advanced footstep power generator system that uses peizo sensors to generate power from human footsteps.

The system allows for a platform for placing footsteps. The peizo sensors are mounted below the platform to generate voltage from footsteps.

The sensors are placed in such an arrangement so as to generate maximum output voltage. This is then provided to our monitoring circuitry.

The microcontroller-based monitoring circuit allows users to monitor the voltage and charge a connected battery.

It also displays the charge generated and displays on an LCD display. Also it consists of a USB mobile phone charging point where user may connect cables to charge mobile phone from the battery charge.

Thus we charge a battery using power from user footsteps, display it on lcd using microcontroller circuit and allow for mobile charging through the setup.

BLUETOOTH BASED HOME AUTOMATION USING ARDUINO AND ANDROID



**Project report submitted in partial fulfillment of the
requirements for the degree of '*Bachelor of
Technology*'
in Electrical & Electronics Engineering
Maulana Abul Kalam Azad University of Technology
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Under the Supervision of,

Mr. Suman Kumar Dey
(Assistant Professor)
Electrical & Electronics Engineering Department

ACKNOWLEDGEMENT

We would like to express our sincere gratitude to all the people without whom we cannot be able to make this project. First, we would like to thanks our parents as we are really appreciated by them.

Then it is a genuine pleasure to express our deep sense of thanks and gratitude to our mentor and guide, Mr. Suman Kumar Dey, Assistant Professor (EEE), for his valuable time and help throughout the project work. His dedication and keen interest and above all his overwhelming attitude to help his students have been solely and mainly responsible for completing our work. His timely and scholarly advice and scientific approach have helped us to a great extent to complete this work.

We are also grateful to other faculty members for their moral support during this period of work. We also extend our sincere thanks to those, who have directly or indirectly helped us in completing this job.



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CERTIFICATE OF APPROVAL

This is to certify that the Dissertation entitled "Bluetooth Based Home Automation Using Arduino And Android" is the work done by "Mr. Susovan Dey", "Mr. Subrata Karmakar", "Mr. Sangram Saha", "Ms. Arpita Dey", "Mr. Soumen Chandra Maiti" in B. Tech, for the award of degree of "Bachelor of Technology", at Regent Education & Research Foundation, Barrackpore, under the supervision and guidance of "Mr. Suman Kumar Dey" Assistant Professor (EEE) at Regent Education & Research Foundation.

The work is completed and ready for evaluation in partial fulfillment for the award of Bachelor of Technology, under the Maulana Abul Kalam Azad University of Technology, during the academic year 2022-2023.

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RECOMMENDATION

I hereby recommended that the project title “BLUETOOTH BASED HOME AUTOMATION USING ARDUINO AND ANDROID” submitted by “Mr. Susovan Dey”, “Mr. Subrata Karmakar”, “Mr. Sangram Saha”, “Ms. Arpita Dey”, “Mr. Soumen Chandra Maiti” is accepted in partial fulfillment of the requirement for the four years degree of “BACHELOR OF TECHNOLOGY” in “ELECTRICAL & ELECTRONICS ENGINEERING” from the college “REGENT EDUCATION & RESEARCH FOUNDATION” under “MAKAUT”.

Suman Kumar Dey
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DECLARATION BY CANDIDATE

We hereby declare that the Project Work on “**BLUETOOTH BASED HOME AUTOMATION USING ARDUINO AND ANDROID**” is done by us; Susovan Dey, Subrata Karmakar, Sangram Saha, Arpita Dey & Soumen Chandra Maiti submitted to Regent Education & Research Foundation for the requirement of the degree of Bachelor of Technology”, under Maulana Abul Kalam Azad University of Technology, during the academic year of 2022-2023 .The project work is totally genuine & we have not copied it from any other sources.

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CONTENT

➤ **Chapter-1**

Introduction

➤ **Chapter-2**

Literature Survey

➤ **Chapter-3**

3.1. Problem Statement

3.2. Actual Methodology

➤ **Chapter-4**

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➤ **Chapter-7**

References

Project Report On:
BLUETOOTH CONTROLLED HOME AUTOMATION USING
ARDUINO APPLICATION



“Project report submitted in fulfillment of the requirement of final semester of bachelor’s degree in technology in Electrical and Electronics Engineering from Maulana Abul Kalam Azad University of Technology.”

Submitted by:

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Under The Guidance of
BIDYUT KUMAR GHOSH (ASST.
PROF.)
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ACKNOWLEDGEMENT

We would like to express our sincere gratitude to our project guide **Bidyut Kumar Ghosh (Asst. Prof.)** for her constant help, support and motivation throughout these days with our project.

Our special thanks to all the faculty members and all technical staffs of Regent Education And Research Foundation who rendered their help during the period of our study as well as during the project.

Finally warm gratitude to **Regent Education And Research Fountion.**

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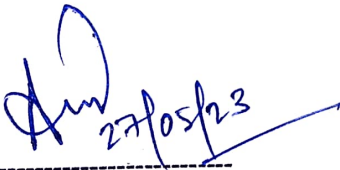
Signature: *Angan Maity*

University Roll No: 26302820031 University Reg No: 202630102820036

Certificate Of Approval

This is to certify that this report of B. Tech Final Year project entitled "BLUE-TOOTH CONTROLLED HOME AUTOMATION USING ARDUINO APPLICATION" has been carried out by. Asfakullah Sk , Pujan Chakrabortty , Sayan Bhakta , Debjit Mukherjee and Angan Maity from Electrical And Electronics Engineering Department under my supervision and guidance.

In my opinion, the report in its present form fulfils all requirements, as specified by Regent Education and Research Foundation and as per regulation of the Maulana Abul Kalam Azad University of Technology. In fact, it has attained the standard necessary for submission. To the best of my knowledge, the results embodied in this report are original in nature and worthy of incorporation in the present version of the report for B. Tech program in Electrical And Electronics Engineering in the year 2022-2023.


27/05/23

HOD OF DEPARTMENT(EEE)

SUMAN KUMAR DEY
(ASSISTANT PROFESSOR)




27/05/23

PROJECT GUIDE

BIDYUT KUMAR GHOSH
(ASSISTANT PROFESSOR)

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DTMF BASED HOME AUTOMATION

A PROJECT REPORT

Submitted in Fulfilment for the Degree

Of B. TECH in

ELECTRICAL & ELECTRONICS ENGINEERING

From

MAULANA ABUL KALAM AZAD UNIVERSITY OF TECHNOLOGY

(MAKAUT, WB)

SUBMITTED BY

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SUSMITA MONDAL (26302820052)

SK SAHIL HOSSIAN (26302820036)

SHOVIK MONDAL (26302820007)

MANOJ KUMAR MAHATO (26302820040)

Under the Guidance of

Mr. SANJIB PAL



Department of **ELECTRICAL & ELECTRONICS ENGINEERING**

REGENT EDUCATION & RESEARCH FOUNDATION

MARCH, 2023

ACKNOWLEDGEMENT

I would like to express my special thanks of gratitude to my teacher & as well as our Head of the Department (EE) and project supervisor **Mr. SANJIB PAL** who gave me the golden opportunity to do this wonderful project on the topic, **DTMF BASED HOME AUTOMATION** which also helped me in doing a lot of Research and I came to know about so many new things I am really thankful to them.

Secondly, I would also like to thank my friends who helped me a lot in finalizing this project within the limited time frame. Any attempt at any level can't be satisfactorily completed without the support and guidance of my teacher and friends who helped me a lot in gathering different information, collecting data and guiding me from time to time in making this project unique.

I am over helmed in all humbleness and gratefulness to acknowledge my depth to all those have helped me to put this ideas, well above the level of simplicity and into something concrete.

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MANOJ KUMAR MAHATO
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RECOMMENDATION

I hereby recommended that the project title “**DTMF BASED HOME AUTOMATION**” submitted by **SUBHADIP SAHOO, SUSMITA MONDAL, SHOVIK MONDAL, SK SAHIL HOSSIAN, MANOJ KUMAR MAHATO**

are accepted in fulfilment of the requirement for the **4TH year degree of “B.TECH” IN “ELECTRICAL & ELECTRONICS ENGINEERING”** from the college “**REGENT EDUCATION & RESEARCH FOUNDATION**” under “**MAULANA ABUL KALAM AZAD UNIVERSITY OF TECHNOLOGY (MAKAUT, WB)**”.

MR. SANJIB PAL
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REGENT EDUCATION & RESEARCH FOUNDATION

MR. SANJIB PAL
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CERTIFICATE OF APPROVAL

This to certify that the project report entitled “**DTMF BASED HOME AUTOMATION**” submitted by “**SUBHADIP SAHOO, SUSMITA MONDAL, SHOVIK MONDAL, SK SAHIL HOSSIAN, MANOJ KUMAR MAHATO**”

for 8th semester examination have been prepared following the guidelines of B.TECH degree in ELECTRICAL & ELECTRONICS ENGINEERING, awarded by the “**MAULANA ABUL KALAM AZAD UNIVERSITY OF TECHNOLOGY (MAKAUT, WB)**”, WEST BENGAL.

They have carried out the project work under my supervision.

Mr. SANJIB PAL
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**IOT BASED HOME AUTOMATION SYSTEM OVER THE WIRELESS
FIDELITY**

**A project submitted in partial fulfilment
Of the requirements for the award of the degree of
Bachelor of Technology
On
Electrical and Electronics Engineering
To the department of
EEE (Electrical and Electronics Engineering)
Of
Regent Education and Research Foundation**

By

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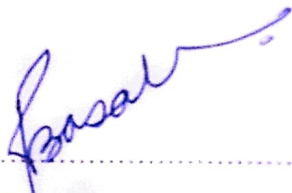
Asst. Prof. Prabal Kr. Basak

**Departments of Electrical & Electronics Engineering
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May, 2023

RECOMMENDATION

We hereby recommended that the project title 'IOT BASED HOME AUTOMATION SYSTEM OVER THE WIRELESS FIDELITY' submitted by Sourav Sarkar, Vishal Kumar Thakur, Sougata Dhar, Padam Bahadur Thapa, Animesh Bhattacharjee, Srinjoy Dey is accepted in partial fulfilment of the requirement for the four years degree of BACHELAR OF TECHNOLOGY in ELECTRICAL & ELECTRONICS ENIGNEERING from the college 'REGENT EDUCATION & RESEARCH FOUNDATION' under 'MAKALIT'.



Project guide

Prabal Kr. Basak

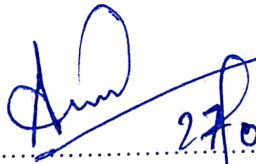
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B.Tech for the award of degree of 'Bachelor of Technology' at Regent Education & Research Foundation, Barrackpore, under the supervision & guidance of Professor of EEE at Regent Education & Research Foundation.

The work is completed and ready for evaluation in partial fulfilment. For the award of Bachelor of Technology, under the 'Maulana Abul Kalam Azad University of Technology'.


27/05/23

Dr. Suman Kumar Dey
H.O.D (EEE Department)



ACKNOWLEDGEMENT

I would like to thank respected Sir Prabal Kr. Basak (Asst. Prof. in department of Electrical & Electronics Engineering at Regent Education & Research Foundation, Barrackpore) for giving me such a wonderful opportunity to expand my knowledge for my own branch and giving me guidelines to present a seminar report. It helped me a lot to realize of what we study for. Secondly, I would like to thank my parents who patiently helped me as I went through my work and helped to modify and eliminate some of the irrelevant and unnecessary stuffs. Thirdly I would like to thank my friends who helped me to make my work more organized and well stacked till the end. Next, I would thank Microsoft for developing such a wonderful tool like MS-Word. It helped my work a lot to remain error free. Last but clearly not the least, I would thank the Almighty for giving me the strength to complete my report on time.

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Sourav Sarkar

Vishal Kumar Thakur

Sougata Dhar

Padam Bahadur Thapa

Animesh Bhattacharjee

B.Tech, 8th Sem

Regent Education & Research Foundation

Barrackpore

Department of EEE

A PROJECT REPORT ON

**AUTOMATIC RECHARGEABLE SOLAR PANEL STREET LIGHT &
SUBSTITUTE SUPPLY DURING FULLY DISCHARGED SOLAR PANEL
POWER**

Submitted in partial fulfillment of the requirements

For the award of the degree

BACHELOR OF TECHNOLOGY

IN

ELECTRICAL & ELECTRONICS ENGINEERING

SUBMITTED BY

JEWEL RANA	(26302820021)
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Under the Guidance of
MS. C. RAJALAKSHMI



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MAY, 2023

ACKNOWLEDGEMENT

I take this opportunity to place on record my deep sense of gratitude to Ms. C. Rajalakshmi for her valuable guidance, encouragement and helpful criticism during the course of this project work. My thanks are also to Mr. SUMAN KUMAR DEY, Head of Electrical & Electronics Engineering Department for his constant encouragement during my work and for providing necessary facilities to carry out the project. I also grateful to Dr. RAJORSHI BANDHOPADHYAY, Principal, RERFGI for giving me this opportunity to be a part of this esteemed institution and facilitate me for carrying out the project work. Last, but not the least, I thank all the staff members of Electrical Engineering Department, RERFGI for helping me to carry out the thesis. Finally I am grateful to my all family member for giving their continuous support and encouragement throughout the process from beginning.



REGENT EDUCATION & RESEARCH FOUNDATION

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CERTIFICATE

We/I hereby certify that the project report prepared by *Mr. Souvik Roy* entitled "AUTOMATIC RECHARGEABLE SOLAR PANEL STREET LIGHT AND SUBSTITUE SUPPLY DURING FULLY DISCHARGED SOLAR PANEL POWER" be accepted in partial fulfilment of the requirements for awarding the degree of "Bachelor of Technology in Electrical & Electronics Engineering" Session [2022-2023] in the Department of Electrical & Electronics Engineering, RERFGI, Barrackpore. The forgoing PROJECT is hereby approved as a creditable study of an Engineering Subject carried out and presented in a manner of satisfactory to warrant its acceptance as a pre- requisite to the DEGREE for which it has been submitted.

It is notified to be understood that by this approval, the undersigned do not necessarily endorse or approve any statement made, opinion expressed and conclusion drawn therein but approve the PROJECT only for the purpose for which it has been submitted.

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REGENT EDUCATION & RESEARCH FOUNDATION

Group of Institutions

RECOMMENDATION

We hereby recommend that the project entitled “AUTOMATIC RECHARGEABLE SOLAR PANEL STREET LIGHT AND SUBSTITUE SUPPLY DURING FULLY DISCHARGED SOLAR PANEL POWER” being submitted by JEWEL RANA (Registration No- 202630102820046 of 2020-21 and Roll No- 26302820021), ANTARA DEBNATH (Registration No- 202630102820058 of 2020-21 and Roll No- 26302820009), SOURENDRA DAS (Registration No- 202630102820050 of 2020-21 and Roll No- 26302820017), RAJARSHI KANTI ROY (Registration No- 202630102820044 of 2020-21 and Roll No- 26301619029), SOUVIK ROY (Registration No- 202630102820035 of 2020-21 and Roll No- 26302820032) to MAKAUT for the award of the degree of Bachelor of Technology in Electrical Engineering is the record of his Bonafide research work carried out under my supervision and guidance. The results presented in this thesis have not been submitted elsewhere for the award of any other degree or diploma.

This work in my opinion, has reached the standard of fulfilling the requirement for the award of Degree of Bachelor of Electrical Engineering.

It is notified to be understood that by this approval, the undersigned do not necessarily endorse or approve any statement made, opinion expressed and conclusion drawn therein but approve the PROJECT only for the purpose for which it has been submitted

Jewel Rana
(Group Leader)

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ABSTRACT

In the past few years, the Smart Grid has gained a lot of popularity, mainly due to the fact that it promises a more intelligent, efficient, and reliable use of the power resources, while also providing a better quality of service to the customers. The advances in the technology of renewable energy sources have also contributed to the increased dependence on renewable energy, as opposed to the conventional fossil-based sources. In this paper, we demonstrate an idea for using renewable energy sources; namely, solar energy, to power a street lighting system, which could alleviate a lot of stress on the conventional power grid, and take us a step further in the process of moving towards a more intelligent power grid.

This paper demonstrates a prototype for a smart street-lighting system, in which a number of DC street lights are powered by a photovoltaic (PV) source. A rechargeable battery of 4V capacity is added to store the excess energy of the solar panel, which can later be retrieved at night time, or whenever the sunlight is being obstructed by clouds or other forms of shading which will be controlled fully by photo sensor.

Also a separate battery source has interconnected with the common circuit by change over for using after fully solar power discharged in night time.

A PROJECT REPORT ON

ARTICULATED ARM ROBOT WITH IOT CAPABILITIES

Submitted in Partial fulfilment of the requirements
For the award of the degree

BACHELOR OF TECHNOLOGY
IN
ELECTRICAL & ELECTRONICS ENGINEERING

SUBMITTED BY

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Under the guidance of
Prof. Ashmita Guha Chowdhury



Department of
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MAY, 2023

Acknowledgement

I take this opportunity to place on record my deep sense of gratitude to Prof. Ashmita Guha Chowdhury, for his valuable guidance, encouragement and helpful criticism throughout. Sincere thanks to Prof. Suman Kumar Dey head of Electrical & Electronics Engineering department, Regent Education & Research Foundation, for his constant encouragement during our work and for providing necessary facilities to carry out the project. We are also grateful to Prof. for his endless guidance and support. We are also thankful to The Principal of Regent Education & Research Foundation for giving us the opportunity to be a part of this esteemed institution and facilitate us for carrying out the project work. Lastly, we would like to thank all the staff members of Electrical Engineering Department (RERF) for helping us to carry out thesis and we are also grateful to our family for giving their continuous support and encouragement throughout the process from beginning.



REGENT EDUCATION & RESEARCH FOUNDATION Group of Institutions

CERTIFICATE OF APPROVAL

We hereby certify that the project report prepared by RAJESH DAS, DEBOBRATA MUKHERJEE, GOPAL DEY, SATYAM BANDYOPADHYAY, PRATIP GHOSH, "Articulated Arm Robot with IoT Capabilities" be accepted in partial fulfilment of the requirements for awarding the degree of "Bachelor of Technology in Electrical & Electronics Engineering" session (2020-2023] in the Department of Electrical & Electronics Engineering, (RERF), Barrackpore. The going PROJECT is hereby approved as a creditable study of an Engineering Subject died out and presented in a manner of satisfactory to warrant its acceptance as a prerequisite to the DEGREE for which it has been submitted.

Notified to be understood that by this approval, the undersigned do not necessarily endorse or approve any statement made, opinion expressed and conclusion drawn therein but approve the PROJECT only for the purpose for which it has been submitted.

Agre
27/05/23

(Project Guide)

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REGENT EDUCATION & RESEARCH FOUNDATION Group of Institutions

RECOMMENDATION

I hereby recommend that the project entitled "ARTICULATED ARM ROBOT WITH IOT CAPABILITIES" being submitted by RAJESH DAS, DEBOBRATA MUKHERJEE, GOPAL DEY, SATYAM BANDYOPADHYAY, PRATIP GHOSH, to MAKAUT for the award of the degree of Bachelor of Technology in Electrical Engineering is the record of his Bonafede research work carried out under my supervision and guidance. The presented thesis has not been submitted elsewhere for the award of any other degree or diploma. This work in my opinion, has reached the standard of fulfilling the requirement for the award of Degree of Bachelor of Electrical Engineering. It is notified to be understood that by this approval, the undersigned do not necessarily endorse or approve any statement made, opinion expressed and conclusion drawn therein but approve the PROJECT only for the purpose for which it has been submitted.

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ABSTRACT

This proposed work provides an overview of how servo motors can be utilized to create joints for a robotic arm and control its movements. In today's world, there is an increasing need to develop artificial arms for situations where human interaction is challenging or impossible. In this paper, we propose the construction of an articulated arm robot with IoT capabilities. The robot will be controlled via Bluetooth using a smartphone and will be built using servo motors, an Arduino controller, and a microcontroller interface. The robot arm's movements will include forward, backward, left, and right motions. The design of the robotic arm primarily focuses on utilizing servo motors with a microcontroller interface. Control of the arm will be achieved through a Bluetooth connection with a smartphone. The objective of this work is to develop a pick and place robotic arm with a soft catching gripper capable of lifting hazardous objects that cannot be touched by human hands. Additionally, this robotic arm can be employed for the displacement of heavy objects or for introducing automation in various industries. The microcontroller board will be programmed to control the servo motors, and data will be transmitted to an IoT device. This model resembles a robotic crane and can be modified accordingly. Robotic arms play a significant role in the automation industry and are integral to the fast-growing mechatronics field. The Articulated Arm Robot with IoT capabilities project focuses on pick and place tasks, including its extension, positioning, orientation, tools, and the objects it can manipulate. This paper explores the construction of a robotic arm using a microcontroller and its diverse applications.

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Design Of a Controller For Solar PV Applications

Project submitted in partial Fulfillment Of
The requirements for B.Tech In
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ACKNOWLEDGEMENT

I would want to convey my heartfelt gratitude to **Mr. Sandeep chakraborty** my mentor, for his invaluable advice and assistance in completing my project. He was there to assist me every step of the way, and her motivation is what enabled me to accomplish my task effectively. I would also like to thank our HOD, **Mr. Suman Kr. Dey**, for providing me with this wonderful opportunity to work on a project with the topic smart dustbin. The completion of the project would not have been possible without their help and insights.

I would also like to thank all of the other supporting personnel who assisted me by supplying the equipment that was perform efficiently on this project.

I would like to take this opportunity to express my gratitude to all of my group members **imangshu shil, Shibsankar kamilya, Sourav dalal & Debarjun maity**. The project would not have been successful without their cooperation and inputs.

Apurba Sarkar

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REGENT EDUCATION & RESEARCH
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INSTITUTIONS

CERTIFICATE FOR APPROVAL

We hereby certify that the project prepared by Apurba Sarkar, Himangshu Shil, Sourav Dalal, Shibsankar Kamilya, Debarjun Maity --- “ **DUAL AXIS SOLAR TRACKER using ARDUINO & Battery pack**” be accepted in partial fulfilment of the requirement of rewarding the degree of “Bachelor of technology in Electrical Engineering.” Session [2020-2023] in the department of Electrical and Electronics Engineering at Regent Education Research Foundation, Barrackpore. This project is hereby approved as suitable study of an Engineering subject carried out and prevent in a manufacture satisfactory to warrant its acceptance as a pre certified to the Degree for which it has been submitted. It is notified to be understood that by this approval, the undersigned do not necessarily endorse or approved made, option expressed and conclusion drawn therein but approve the project only for the purpose for which it has been submitted.

Sandeep Chakraborty 27/05/23

(Signature of Mentor)

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Mr. Suman Kr. Dey



RECOMMENDATION

I hereby recommend that the project entitled "DUAL AXIS SOLAR TRACKER using ARDUINO & Battery pack" being submitted by----- "Apurba Sarkar, shibsankar kamilya, himangshu shil, sourav dalal, debarjun maity." To MAKAUT for the award of the degree of Bachelor of Technology in electrical engineering is the record of his Bonafied research work carried out under my supervision and guidance. The results presented in this thesis have not been submitted elsewhere for the award of any other degree or diploma. This work in my opinion has reached the standard of fulfilling the requirement for the award of degree of Bachelor of Electrical Engineering. It is notified to be understood that by this approval, the undersigned do not necessarily endorse or approve any statement made opinion expressed and conclusion drawn therein but approve the PROJECT only for the purpose for which it has been submitted. Project Guide Mr. Sandeep chakraborty Electrical Engineering Department Regent Education & Research Foundation Barrackpore, North 24pgs.



Project Guide

Mr. Sandeep chakraborty

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DECLARATION

I hereby declare that my project titled "SOLAR TRACKER using ARDUINO and BATTERY PACK" is a bonafied record of the project work which I have submitted to Regent Education & Research Foundation Group of Institutions, MAKAUT University in partial fulfillment of the credit requirements for the degree of Bachelor of Technology in my authentic work. This project has not been copied, duplicated or plagiarized from any other paper, journal, document or book and has not been submitted to any educational institute or otherwise for the award of any certificate, diploma, degree or recognition. This is an authentic piece of work and in case there is any query regarding the same, I shall be held responsible for answering any queries in this regard.

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(Signature of Student)

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Temperature Based Automatic Fan Speed Control

A Project Report Submitted In Partial Fulfillment of the
Requirements for the Award of Degree of

B.Tech
In
Electrical & Electronics Engineering

Submitted by

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May, 2023

ACKNOWLEDGMENT

The analysis of the project work wishes to express our guide to **Asst. Prof. Mrinmoy Das** for allowing the degree attitude and providing effective guidance in department of this project work. His conscription of the topic and all the helpful hints, he provided, contributed greatly to successful development of this work, without being pedagogic and overbearing influence.

We also express my sincere guidance to **Dr. Suman Kumar Dey**, Head of Department of Electrical & Electronics Engineering of Regent Education and Research Foundation Group of Institutions for giving the scope of successfully carrying out the project work.

Finally, we take this opportunity to thank to **Dr. Samik Chakraborty** Principal of Regent Education and Research Foundation Group of Institutions for giving me the scope of carrying out the project work.

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**REGENT EDUCATION & RESEARCH FOUNDATION
Group of Institutions**

CERTIFICATE

This is to certify that the report entitled **Temperature based automatic fan speed control** submitted by **Sudip Maurh, Sourav Roy, Subham Biswas, Subrajoy Chowdhury and Shakil Ahmed** to the REGENT EDUCATION and RESEARCH FOUNDATION GROUP of INSTITUTIONS for the award of the degree of **B.Tech in Electrical & Electronics Engineering** a bona-fide record of the work carried out by her under my/our supervision during the year 2022-2023. The contents of this report, in full or in parts, have not been submitted to any other Institute or University for the award of any degree.

Date: 27/05/2023


Mr. Mrinmoy Das
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REGENT EDUCATION & RESEARCH FOUNDATION Group of Institutions

Recommendation

I hereby recommended that the project report entitled "Temperature based automatic fan speed control" submitted by **Sudip Maurh, Sourav Roy, Subham Biswas, Subrajoy Chowdhury and Shakil Ahmed** be accepted in partial fulfilment of the requirement for the degree of **B.Tech in Electrical & Electronics Engineering** from the Regent Education & Research Foundation Group of Institutions, Barrackpore.

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A REPORT SUBMITTED IN PARTIAL FULFILMENT OF
THE REQUIREMENT FOR THE B-TECH IN
ELECTRICAL & ELECTRONICS ENGINEERING

FROM

REGENT EDUCATION & RESEARCH FOUNDATION GROUP
OF INSTITUTIONS



AFFILIATED TO

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Under The guidance of

Dr. Arindita Saha (Assistant Professor)

Department of Electrical Engineering

REGENT EDUCATION AND RESEARCH FOUNDATION

2022-2023

ACKNOWLEDGEMENT

In performing our assignment, we had to take the help and guideline of some respect Persons, who deserve our greatest gratitude. The completion of this assignment gives us much pleasure. We would like to show our gratitude to our guide **Dr. Arindita Saha, Asst. Professor, Department of Electrical & Electronics Engineering, Regent Education and Research Foundation** for giving us a good guideline for assignment throughout numerous consultations. We would also like to expand our deepest gratitude to all the lecturers of Electrical Engineering department, Library staffs and all those who have directly and indirectly guided us in writing this partial report.

Many people, especially our classmates or team members itself, have made valuable comment suggestions on this proposal which gave us an inspiration and motivation to start our project. We thank all the people for their help directly and indirectly to complete our project.

CERTIFICATE

This is to certify that the project work entitled" **AUTOMATIC STREET LIGHT CONTROLLER CIRCUIT USING RELAYS AND LDR**" submitted by the

followings in partial fulfilment of the requirement for the award of B-Tech in Electrical & Electronic Engineering of Regent Education & Research Foundation, during academic year 2022-2023

This project work carried out by them under supervision and guidance of the undersigned project group.

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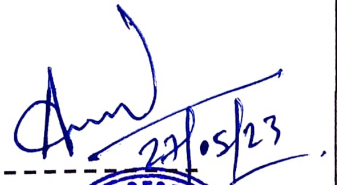
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RECOMMENDATION

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I hereby recommend that the project entitled **AUTOMATIC STREET LIGHT CONTROLLER CIRCUIT USING RELAYS OR LDR BEING SUBMITTED BY**_____

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To MAKUT for the award of the degree of Bachelor of Technology in **Electrical & Electronic Engineering**

Is the record of his benefited research work carried out under my supervision and guidance? The results presented in this thesis have not been submitted elsewhere for the award of any other Degree or Diploma. This work in my opinion, has reached the standard of fulfilling the requirement for the award of Degree of Bachelor of Electrical & Electronic Engineering.

It is notified to be understood that by this approval, the undersigned do not necessarily endorse or approve any statement made, opinion expressed and conclusion drawn there in but approve the project only for the purpose for which it has been submitted.


Project Guide

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**Security Alarm System using PIR Motion Sensor
&
automatic light on/off sensor using microwave sensor**

**Project report submitted in partial fulfilment of the requirements for the
degree of 'Bachelor of Technology'
in
Maulana Abul Kalam Azad University of Technology
2020**

By

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ACKNOWLEDGEMENT

We would like to express my sincere gratitude to all the people without whom we Cannot be able to make this project. First, we would like to thanks our parents as I am really appreciated by them.

Then it is a genuine pleasure to express our deep sense of thanks and gratitude to our mentor and guide, Mr. Suman Kr Dey, Assistant Professor (EEE), for his valuable time and help throughout the project work. His dedication and keen interest and above all his overwhelming attitude to help his students have been solely and mainly responsible for completing my work. His timely and scholarly advice and scientific approach have helped me to a great extent to complete this work.

We are also grateful to other faculty members for their moral support during this period of work. We also extend our sincere thanks to those, who have directly or indirectly helped us in completing this job.

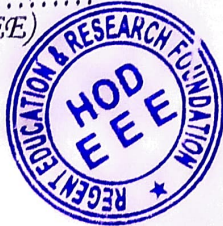
CERTIFICATE OF APPROVAL

This is to certify that the Dissertation entitled "Protective and preventing arrangement for the human life against road accident along with the implementation of energy efficient smart tolling unit" is the work done by "Mr Subhajit Paul", "Mr. Anirban Nandi", "Ms. Sangita Roy", "Ms. Swagata Saha", "MS. Dipshikha Chakarborty" and "MS. Ananya Dutta" in B. Tech, for the award of degree of "Bachelor of Technology", at Regent Education & Research Foundation, Barrackpore, under the supervision and guidance of "Mr.Suman Kr Dey" Assistant Professor (EEE) at Regent Education & Research Foundation.

The work is completed and ready for evaluation in partial fulfilment for the award of Bachelor of Technology, under the Maulana Abul Kalam Azad University of Technology, during the academic year 2020-2021.

Anu
28/05/23

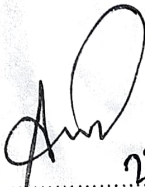
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Principal

RECOMMENDATION

I hereby recommended that the project title "Security Alarm System using PIR Motion Sensor and automatic light on/off sensor using microwave sensor" submitted by "Mr Subhajit Paul", "Mr. Anirban Nandi", "Ms. Sangita Roy", "Ms. Swagata Saha", "MS. Dipshikha Chakarborty" and "MS. Ananya Dutta" is accepted in partial fulfilment of the requirement for the four year degree of "BACHELOR OF TECHNOLOGY" in "ELECTRICAL & ELECTRONICS ENGINEERING" from the college "REGENT EDUCATION & RESEARCH FOUNDATION" under "MAKAUT".


27/05/23

Mr. Suman Kr Dey
Project Supervisor
Assistant Professor
Electrical & Electronics Engineering Department
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DECLARATION BY CANDIDATE

I hereby declare that the Project Work on "Protective and preventing arrangement for the human life against road accident along with the implementation of energy efficient smart tolling unit" is done by us; Subhajit Paul, Arinban Nandi, Sangita Roy, Swagata Saha, Dipshikha Chakraborty & Ananya Dutta submitted to Regent Education & Research Foundation for the requirement of the degree of Bachelor of Technology", under Maulana Abul Kalam Azad University of Technology, during the academic year of 2019-2020. The project work is totally genuine & we have not copied it from any other sources.

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CONTENT

➤ **Chapter-1**

1.0. Introduction

➤ **Chapter-2**

2.0. Literature Review

➤ **Chapter-3**

3.0. Theoretical Background

3.1. Proposed, System Design and Operation

3.2. Working Principle

3.3. Description of Different Used Parts

➤ **Chapter-4**

4.0. Design & Result Analysis

4.1. Design (Circuit Diagram)

4.2. Result (Input & Output)

4.3. Advantages

➤ **Chapter-5**

5.0. Future Enhancement

➤ **Chapter-6**

6.0. Conclusion

➤ **Chapter-7**

7.0. Reference

HOME AUTOMATION

1. SMART DUSTBIN
2. CELL BALANCING FOR OFFLINE UPS

Project submitted in partial Fulfillment

Of

The requirements for B.Tech

In

Electrical and Electronics Engineering



Submitted By

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Sudipta Sau
8th Sem, EEE



REGENT EDUCATION & RESEARCH
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CERTIFICATE FOR APPROVAL

We hereby certify that the project prepared by Sudipta Sau, Subhajt Misra, Krishnendu Mukherjee, Ankita Daw, Dipika Das --- **“Smart Home Automation using ARDUINO & Battery pack”** be accepted in partial fulfilment of the requirement of rewarding the degree of “Bachelor of technology in Electrical Engineering.” Session [2020-2023] in the department of Electrical and Electronics Engineering at Regent Education Research Foundation, Barrackpore. This project is hereby approved as suitable study of an Engineering subject carried out and prevent in a manufacture satisfactory to warrant its acceptance as a pre certified to the Degree for which it has been submitted. It is notified to be understood that by this approval, the undersigned do not necessarily endorse or approved made, option expressed and conclusion drawn therein but approve the project only for the purpose for which it has been submitted.

Enakshmi Nandi

(Signature of Mentor)

Mrs.Enakshmi Nandi

Sumon Kr.

(Signature of HOD)

Mr. Sumon Kr.



RECOMMENDATION

I hereby recommend that the project entitled "Smart Home Automation using ARDUINO & Battery pack" being submitted by----- "Sudipta Sau, Subhajit Misra, Krishnendu Mukherjee, Ankita Daw, Dipika Das." To MAKAUT for the award of the degree of Bachelor of Technology in electrical engineering is the record of his Bonafied research work carried out under my supervision and guidance. The results presented in this thesis have not been submitted elsewhere for the award of any other degree or diploma. This work in my opinion has reached the standard of fulfilling the requirement for the award of degree of Bachelor of Electrical & Electronics Engineering. It is notified to be understood that by this approval, the undersigned do not necessarily endorse or approve any statement made opinion expressed and conclusion drawn therein but approve the PROJECT only for the purpose for which it has been submitted. Project Guide Mrs. Enakshmi Nandi Electrical Engineering Department Regent Education & Research Foundation Barrackpore, North 24pgs.

Enakshmi Nandi

Project Guide

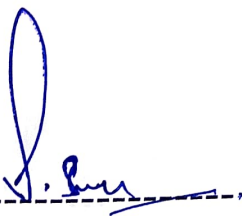
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DECLARATION

I hereby declare that my project titled "SMART DUSTBIN & CELL BALANCING" is a bonafied record of the project work which I have submitted to Regent Education & Research Foundation Group of Institutions, MAKAUT University in partial fulfillment of the credit requirements for the degree of Bachelor of Technology in my authentic work. This project has not been copied, duplicated or plagiarized from any other paper, journal, document or book and has not been submitted to any educational institute or otherwise for the award of any certificate, diploma, degree or recognition. This is an authentic piece of work and in case there is any query regarding the same, I shall be held responsible for answering any queries in this regard.



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ABSTRACT

SMART DUSTBIN

The main objective of the project is to design a smart dustbin which will help in keeping our environment clean and also eco friendly. We are inspired from Swaach Bharat Mission. Nowadays technologies are getting smarter day-by-day so, as to clean the environment we are designing a smart dustbin by using Arduino. This smart dustbin management system is built on the microcontroller based system having ultrasonic sensors on the dustbin. If dustbin is not maintained than these can cause an unhealthy environment and can cause pollute that affect our health. In this proposed technology we have designed a smart dustbin using ARDUINO UNO, along with ultrasonic sensor, servo motor, and battery jumper wire. After all hardware and software connection, now Smart Dustbin program will be run. Dustbin lid will when someone comes near at some range than wait for user to put garbage and close it. It's properly running or not. For social it will help toward health and hygiene, for business for we try to make it affordable to many as many possible. So that normal people to rich people can take benefit from it.



Fig : Smart Dustbin