PERFORMANCE ANALYSIS OF SOLAR PV WITH & WITHOUT COOLING & CLEANING TECHNIQUES

Project report submitted
In partial fulfillment of the requirements of the degree of

Bachelor of Technology
in
Electrical & Electronics Engineering
by

Amit

(1501030002)

Under the Guidance of

Ms. Minakshi Katoch

(Assistant Professor)

Mr. Vineet Dahiya

(Assistant Professor)

SCHOOL OF ENGINEERING AND TECHNOLOGY
K R MANGALAM UNIVERSITY
GURUGRAM, HARYANA, INDIA
MAY, 2019

Registrar
K.R. Mangalam University
Sohna Road, Gurugram, (Haryana)

CERTIFICATE

It is certified that the work contained in the project report titled **"Performance analysis of Solar Panel with and without cooling and cleaning techniques"** by Amit, 1501030002 has been carried out under our supervision and that this work has not been submitted elsewhere for a degree.

Ms. Minakshi Katoch,
Assistant Professor,

Mr. Vineet Dahiya,
Assistant Professor,

School of Engineering and Technology
K.R. Mangalam University,
Gurugram, Haryana, India

Registrar
K.R. Mangalam University
Sohna Road, Gurugram, (Haryana)

DECLARATION

I declare that this written submission represents my ideas in my own words and where other's ideas or words have been included, I have adequately cited and referenced the original sources. I also declare that I have adhered to all principles of academic honesty and integrity and have not misrepresented or fabricated or falsified any idea/data/fact/source in my submission. I understand that any violation of the above will be cause for disciplinary action by the Institute and can also evoke penal action from the sources which have thus not been properly cited or from whom proper permission has not been taken when needed.

(Names of the student)	(Roll No.)	(Signature)
Amit	1501030002	

Registrar
K.R. Mangalam University
Sohna Road, Gurugram, (Haryana)

Date: 23/5/19

APPROVAL SHEET

This project report entitled **PERFORMANCE ANALYSIS OF SOLAR PANEL WITH AND WITHOUT COOLING AND CLEANING TECHNIQUES** by **Amit** is approved for the degree of **B.Tech (Electrical & Electronics Engineering), School of Engineering and Technology.**

DEAN
School of Engineering & Technology (SOET)
K.R. Mangalam University
Sohna road, Gurugram
Haryana 122103

23/9/19

Dr. Ranjit Varma
Dean (SOET)

Supervisor

1. Ms. Minakshi Katoch (Assistant Professor)
2. Mr.Vineet Dahiya (Assistant Professor)

Registrar
K.R. Mangalam University
Sohna Road, Gurugram, (Haryana)

Date : 23/9/19

Place : Gurugram

SUN TRACKING SOLAR PANEL

Project report submitted
in partial fulfillment of the requirements of the degree of

Bachelor of Technology
in
Electrical & Electronics Engineering
by

Dharya Pratap Singh
(1501030003)

Under the Guidance of

Ms. Minakshi Katoch
(Assistant Professor)

Mr. Vineet Dahiya
(Assistant Professor)

SCHOOL OF ENGINEERING AND TECHNOLOGY
K R MANGALAM UNIVERSITY
GURUGRAM, HARYANA, INDIA

May 2019

CERTIFICATE

It is certified that the work contained in the project report titled **"Sun Tracking Solar Panel"** by Dharya Pratap Singh, 1501030003 has been carried out under our supervision and that this work has not been submitted elsewhere for a degree.

Ms. Minakshi Katoch,
Assistant Professor,

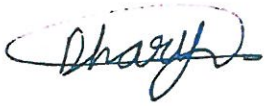
Mr. Vineet Dahiya,
Assistant Professor,

School of Engineering and Technology
K.R. Mangalam University,
Gurugram, Haryana, India

Registrar
K.R. Mangalam University
Sohna Road, Gurugram, (Haryana)

DECLARATION

I declare that this written submission represents my ideas in my own words and where other's ideas or words have been included, I have adequately cited and referenced the original sources. I also declare that I have adhered to all principles of academic honesty and integrity and have not misrepresented or fabricated or falsified any idea/data/fact/source in my submission. I understand that any violation of the above will be cause for disciplinary action by the Institute and can also evoke penal action from the sources which have thus not been properly cited or from whom proper permission has not been taken when needed.

(Names of the student)	(Roll No.)	(Signature)
Dharya Pratap Singh	1501030003	

Date: 23/05/19

APPROVAL SHEET

This project report entitled **SUN TRACKING SOLAR PANEL** by **Dharya Pratap Singh** is approved for the degree of **B.Tech (Electrical & Electronics Engineering), School of Engineering and Technology.**

DEAN
School of Engineering & Technology (SOET)
K.R. Mangalam University
Sohna road, Gurugram
Haryana 122103

23/5/19

Dr. Ranjit Varma

Dean(SOET)

Supervisor

1. **Ms. Minakshi Katoch(Assistant Professor)**
2. **Mr. Vineet Dahiya(Assistant Professor)**

Date : 23/5/19

Place : Gurugram

Registrar
K.R. Mangalam University
Sohna Road, Gurugram, (Haryana)

UNMANNED AERIAL VEHICLE (DRONE) IN QUAD-COPTER AND HEXA-COPTER CONFIGURATION

Project report submitted

In partial fulfilment of the requirements of the degree of

Bachelor of Technology

in

Electrical and Electronics Engineering

by

CHANDERSEN

Under the Supervision of

Ms Puja Acharya

ELECTRICAL AND ELECTRONICS ENGINEERING

SCHOOL OF ENGINEERING AND TECHNOLOGY

K R MANGALAM UNIVERSITY, GURUGRAM, HARYANA, INDIA

JUNE,2020

CERTIFICATE

It is certified that the work contained in the project report titled " UNMANNED AERIAL VEHICLE (DRONE) IN QUAD-COPTER AND HEXA-COPTER CONFIGURATION," by the following students:

Name of the Student	Roll Number
CHANDERSEN	1601030002

has been carried out under my/our supervision and that this work has not been submitted elsewhere for a degree.

Ms Puja Acharya,

Designation,

SCHOOL OF ENGINEERING AND TECHNOLOGY

K R Mangalam University, Gurugram, Haryana, India

Registrar
K.R. Mangalam University
Sohna Road, Gurugram, (Haryana)

DECLARATION

I declare that this written submission represents my ideas in my own words and where others' ideas or words have been included, I have adequately cited and referenced the original sources. I also declare that I have adhered to all principles of academic honesty and integrity and have not misrepresented or fabricated or falsified any idea/data/fact/source in my submission. I understand that any violation of the above will be cause for disciplinary action by the Institute and can also evoke penal action from the sources which have thus not been properly cited or from whom proper permission has not been taken when needed.

(Name(s) of the student)	(Roll No.)	(Signature)
CHANDERSEN	1601030002	

Registrar
K.R. Mangalam University
Schna Road, Gurugram, (Haryana)

APPROVAL SHEET

This project report entitled UNMANNED AERIAL VEHICLE (DRONE) IN QUAD-COPTER AND HEXA-COPTER CONFIGURATION by **(CHANDERSEN)** is approved for the degree **of B.Tech (Electrical and Electronics Engineering), School of Engineering and Technology.**

DEAN
School of Engineering & Technology (SOET)
K.R. Mangalam University
Sohna road, Gurugram
Haryana 122103

Dean (SOET)

Dr. Vinjet Dhaiya

Supervisor

Ms Puja Acharya

Date :

Place: Gurugram

Registrar
K.R. Mangalam University
Sohna Road, Gurugram, (Haryana)

WATER CONTAMINATION DETECTION

Project report submitted

In partial fulfilment of the requirements of the degree of

Bachelor of Technology

In

Electrical & Electronics Engineering

by

Manav Chugh

1801030007

Nikhil Thakur

1801030008

SEMESTER VIII

Under the Supervision of

Mr. Bhavesh Vyas (Asst. Professor)
Department of Electricals & Electronics Engineering

K. R. Mangalam University, Gurugram-122006

School of Engineering and Technology

CERTIFICATE

It is certified that the work contained in the project report titled "**Water Contamination Detection**," by the following students:

Name of the Student	Roll Number
Manav Chugh	1801030007
Nikhil Thakur	1801030008

has been carried out under my/our supervision and that this work has not been submitted elsewhere for a degree.

Signature of Supervisor

Bhavesh Vyas (Asst. Prof.) .....Bhavesh.....

Date: - 1-7-22

Place: - Gurugram

Registrar
K.R. Mangalam University
Sohna Road, Gurugram, (Haryana)

DECLARATION

I declare that this written submission represents my ideas in my own words and where others' ideas or words have been included. I have adequately cited and referenced the original sources. I also declare that I have adhered to all principles of academic honesty and integrity and have not misrepresented or fabricated or falsified any idea/data/fact/source in my submission. I understand that any violation of the above will be cause for disciplinary action by the Institute and can also evoke penal action from the sources which have thus not been properly cited or from whom proper permission has not been taken when needed.

(Name of the student)	(Roll No.)	(Signature)
Manav Chugh	18010300007	
Vidit Thakur	18010300008	

Place: Gurugram

Date: 1-7-22

Registrar
K.R. Mangalam University
Sohna Road, Gurugram, (Haryana)

APPROVAL SHEET

This project report entitled **Water Contamination Detection** by **Manav Chugh & Nikhil Thakur** are approved for the degree **of B. Tech (EEE), School of Engineering and Technology.**

Dahiya

Dr. Vineet Dahiya

(Associate Professor)

Bhavesh

Dr. Bhavesh Vyas

(Assistant Professor)

Date: 1-7-22

Place: Gurugram

Registrar
K.R. Mangalam University
Gurugram, (Haryana)

IOT BASED HYBRID STREET LIGHT

Project report submitted

In partial fulfilment of the requirements of the degree of

Bachelor of Technology

In

Electrical and Electronics Engineering

By

ANKIT YADAV (1801030001)

AYUSH KUMAR (1801030003)

MONIKA CHAUDHARY (1801030010)

Under the Supervision of

Dr. BHAVESH VYAS

(Assistant professor)

School of Engineering and Technology

K R MANGALAM UNIVERSITY, GURUGRAM, HARYANA, INDIA

JUNE-2022

Registrar
K.R. Mangalam University
Sohna Road, Gurugram, (Haryana)

CERTIFICATE

It is certified that the work contained in the project report titled "IOT BASED HYBRID STREET LIGHT," by the following students:

Name of the Student	Roll Number
Ankit Yadav	1801030001
Ayush Kumar	1801030003
Monika Chaudhary	1801030010

Work has been carried out under our supervision and that this work has not been submitted elsewhere for a degree.

Dr. Bhavesh Vyas
(Assistant Professor)
Electrical &Electronics Engineering
K R Mangalam University, Gurugram, Haryana, India

Registrar
K.R. Mangalam University
Sohna Road, Gurugram, (Haryana)

DECLARATION

I declare that this written submission represents my ideas in my own words and where others' ideas or words have been included, I have adequately cited and referenced the original sources. I also declare that I have adhered to all principles of academic honesty and integrity and have not misrepresented or fabricated or falsified any idea/data/fact/source in my submission. I understand that any violation of the above will be cause for disciplinary action by the Institute and can also evoke penal action from the sources which have thus not been properly cited or from whom proper permission has not been taken when needed.

(Name of the student)	(Roll No.)	(Signature)
Ankit yadav	180103001	
Ayush Kumar	180103003	
Monika Chaudhary	1801030010	

Date: 1-7-2022

Registrar
K.R. Mangalam University
Sohna Road, Gurugram, (Haryana)

APPROVAL SHEET

This project report entitled **(IOT BASED HYBRID SHEET LIGHT)** by **(Ankit Yadav, Ayush Kumar, Monika Chaudhary)** is approved for the degree of **B.Tech (Electrical and Electronics Engineering), School of Engineering and Technology.**

DEAN
ering & Technology (SOET)
ngalam University
Road, Gurugram
Haryana 122103

Dr.Vineet Dhaiya

Dean (SOET)

Supervisor

Dr.Bhavesh Vyas (Assistant Professor)

Registrar
K.R. Mangalam University
Sohna Road, Gurugram, (Haryana)

Date: 1-7-2022

Place: Gurugram

WATER CLEANING RO-BOAT

Project report submitted

In partial fulfilment of the requirement for the degree of

Bachelor of Technology

In

Electrical & Electronics Engineering

By

Chetan Bakshi, 1801030005

Harshit Sharma, 1801030006

Rohit Mahato, 1801030009

SEMESTER- VIIIth (EEE)

Under the Guidance of

Dr. Bhavesh Vyas

(Assistant Professor)

Department of Electrical & Electronics Engineering

School of Engineering and Technology

K. R. Mangalam University, Gurugram – 122103

June 2022

Registrar
K.R. Mangalam University
Sohna Road, Gurugram, (Haryana)

CERTIFICATE

It is certified that the work contained in the project report titled "WATER CLEANING RO-BOAT." by the following students:

Name of the Student	Roll Number
Chetan Bakshi	1801030005
Harshit Sharma	1801030006
Rohit Mahato	1801030009

Work has been carried out under my supervision and the work has not been submitted elsewhere for a degree.

Dr. Bhavesh Vyas,
Assistant Professor,
Electrical & Electronics Engineering,
K R Mangalam University, Gurugram, Haryana, India

Registrar
K.R. Mangalam University
Gurugram, (Haryana)

DECLARATION

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(Name of student)	(Roll No.)	(Signature)
Chetan Bakshi	1801030005	
Harshit Sharma	1801030006	
Rohit Mahato	1801030009	

Place: - Gurugram

Date: - 4/07/22

Registrar
K.R. Mangalam University
Sohna Road, Gurugram, (Haryana)

APPROVAL SHEET

This project report entitled **Water Cleaning Ro-Boat** by **Chetan Bakshi, Harshit Sharma & Rohit Mahato** are approved for the degree **of B. Tech (EEE), School of Engineering and Technology.**

DEAN
School of Engineering & Technology (SOET)
K.R. Mangalam University
Sohna road, Gurugram
Haryana 122103

Dr. Vineet Dahiya
(Associate Professor)

Dr. Bhavesh Vyas
(Assistant Professor)

Date: 4/01/22
Place: Gurugram

Registrar
K.R. Mangalam University
Sohna Road, Gurugram, (Haryana)

UNMANNED AERIAL VEHICLE (DRONE) IN QUAD-COPTER AND HEXA-COPTER CONFIGURATION

Project report submitted

In partial fulfilment of the requirements of the degree of

Bachelor of Technology

in

Electrical and Electronics Engineering

by

CHANDERSEN

Under the Supervision of

Ms Puja Acharya

ELECTRICAL AND ELECTRONICS ENGINEERING

SCHOOL OF ENGINEERING AND TECHNOLOGY

K R MANGALAM UNIVERSITY, GURUGRAM, HARYANA, INDIA

JUNE,2020

CERTIFICATE

It is certified that the work contained in the project report titled " UNMANNED AERIAL VEHICLE (DRONE) IN QUAD-COPTER AND HEXA-COPTER CONFIGURATION," by the following students:

Name of the Student	Roll Number
CHANDERSEN	1601030002

has been carried out under my/our supervision and that this work has not been submitted elsewhere for a degree.

Ms Puja Acharya,

Designation,

SCHOOL OF ENGINEERING AND TECHNOLOGY

K R Mangalam University, Gurugram, Haryana, India

Registrar
K.R. Mangalam University
Sohna Road, Gurugram, (Haryana)

DECLARATION

I declare that this written submission represents my ideas in my own words and where others' ideas or words have been included, I have adequately cited and referenced the original sources. I also declare that I have adhered to all principles of academic honesty and integrity and have not misrepresented or fabricated or falsified any idea/data/fact/source in my submission. I understand that any violation of the above will be cause for disciplinary action by the Institute and can also evoke penal action from the sources which have thus not been properly cited or from whom proper permission has not been taken when needed.

(Name(s) of the student)	(Roll No.)	(Signature)
CHANDERSEN	1601030002	

Registrar
K.R. Mangalam University
[illegible] Road, Gurugram, (Haryana)

APPROVAL SHEET

This project report entitled UNMANNED AERIAL VEHICLE (DRONE) IN QUAD-COPTER AND HEXA-COPTER CONFIGURATION by **(CHANDERSEN)** is approved for the degree **of B.Tech (Electrical and Electronics Engineering), School of Engineering and Technology.**

DEAN
School of Engineering & Technology (SOET)
K.R. Mangalam University
Sohna road, Gurugram
Haryana 122103

Dean (SOET)

Dr. Vinjet Dhaiya

Supervisor

Ms Puja Acharya

Date :

Place: Gurugram

Registrar
K.R. Mangalam University
Sohna Road, Gurugram, (Haryana)

GESTURE CONTROLLED WHEELCHAIR

Project report submitted

In partial fulfillment of the requirement for the degree of

Bachelor of Technology

In

Electrical and Electronics Engineering

By

Ansh Tyagi (1901030001)

Tapish Choudhary (1901030002)

Under the guidance of

Dr. Puja Acharya

(Assistant Professor)

Department of Electrical and Electronics Engineering

School of Engineering and Technology

K. R. Mangalam University, Gurugram - 122003

June-2023

Registrar
K.R. Mangalam University
Gurugram, (Haryana)

DECLARATION

We declare that this written submission represents our ideas in our own words and where other's ideas or words have been included, we have adequately cited and referenced the original sources. We also declare that we have adhered to all the principles of academic honesty and integrity and have not misrepresented or fabricated or falsified any idea/data/fact/source in our submission. We understand that any violation of the above will because for disciplinary action by the Institute and canal so evoke penal action from the sources which have thus not been properly cited or from whom proper permission has not been taken when needed. We further declare that if any violation of the intellectual property right or copyright, my supervisor and university should not be held responsible for the same.

Student Name	(Roll No.)	(Signature)
Ansh Tyagi	1901030001	Ansh
Tapish Choudhary	1901030002	Tapish

Place: K.R. Mangalam University

Date: 12th June 2023

Registrar
K.R. Mangalam University
Sohna Road, Gurugram, (Haryana)

CERTIFICATE

It is certified that the work contained in the project report titled "Gesture Controlled Wheelchair" by the following students:

Name of the Student:	Roll Number:
Ansh Tyagi	1901030001
Tapish Choudhary	1901030002

has been carried out under our/my supervision and that this work has not been submitted elsewhere for a degree.

Dr. Rija Ahuja
Name of the Supervisor

Signature of Supervisor

Date: - 12th June 2023

Place: - K.R. Mangalam University

Registrar
K.R. Mangalam University
Road, Gurugram, (Haryana)

APPROVAL SHEET

This project report entitled "Gesture Controlled Wheelchair" by Aush Tyagi & **Tapish Choudhary** is approved for the degree of **B.Tech (Electrical and Electronics Engineering), School of Engineering and Technology.**

Dr. Pankaj Aggarwal
Professor Dean (SOET)

Dr. Puja Acharya
(Assistant Professor)

Date : 12th June 2023.

Registrar
K.R. Mangalam University
Sohna Road, Gurugram, (Haryana)