



Regent Education & Research Foundation Group of Institutions

R&D PROJECT PROPOSAL

(To be filled by the applicant)

1. Title of the project: AUTOMATIC SOLAR STREET LIGHT
2. Name of the Applicant: BIDYUT KUMAR GHOSH
3. Name, Designation, Affiliation of Principal Investigator: BIDYUT KUMAR GHOSH
Assistant Professor, REGENT EDUCATION & RESEARCH FOUNDATION
4. Name, Designation, Affiliation of Co-PI (if any): NA
5. Collaborating Institute (if any): NA
6. Broad Subject area of the Project Proposal (Ex. Electrical Engineering):
Electrical Engineering
7. Abstract (Maximum 150 words): Many conventional street lights are energy efficient, but some extremely old street lights that are still in use are not. If the systems are configured properly, solar photovoltaic street lighting have the potential to be very energy-efficient. Contrary to typical street lighting, solar street lighting is a relatively new invention. There is no electrical power grid connection for these street lights; instead, the solar light will generate its own energy from the sun (photovoltaic panel) and store it in a battery until it is sufficiently dark for the light to turn on. Off-grid solar illumination applications come in a variety of forms. A micro grid, which is effectively a miniature power grid used only for the lights, is one way the solar panels can be connected. Solar photovoltaic technology uses an electronic process that takes place in specific materials known as semiconductors to produce power directly from sunshine.
8. Total Duration (Months): 3 months
9. Plan of Work: (500 characters):
1st Month: Fabrication of solar panel and control unit.
2nd Month: Connection of solar panels in micro grid and testing of battery storage unit.
3rd Month: Trial of system and completion of project.
10. Do you need any Instruments/ facilities outside the Institute(List out within 500 characters):

Sl. No.	Name	Description
1.	JUNCTION BOX	Components required for fabrication of model
2.	VERO BOARD	Components required for fabrication of model

3.	CONNECTER	Components required for fabrication of model
4.	555-IC	Components required for fabrication of model
5.	TRANSISTER	Components required for fabrication of model
6.	VR POT	Components required for fabrication of model
7.	INDICATOR LEDS	Components required for fabrication of model
8.	RELAY	Components required for fabrication of model
9.	WIRES	Components required for fabrication of model
10.	DC LED (25W)	Components required for fabrication of model
11.	SMPS	Components required for fabrication of model
12.	NUTSPSCURES	Components required for fabrication of model
13.	BATTERY 12V 42AH	Components required for fabrication of model

11. Total estimated cost (In Rupees and in Words): Rs. 5301/- (Rupees five thousand three hundred and one only).

12. Summary of the budget

Items	BUDGET (In Rupees)			
	1 st Month	2 nd Month	3 rd Month	Total
Year				
A. Recurring:				
a. Remunerations				
b. Consumables	b. 1201	0	d. 100	1301
c. Travel				
d. Othercosts				
B. Non-recurring Permanent equipment/ publication/software*	0	4000	0	4000
Grand Total (A+B)	1201	4000	100	5301

Date.....24/2/22.....

Place.....R.F.R.F.....

Akash Das

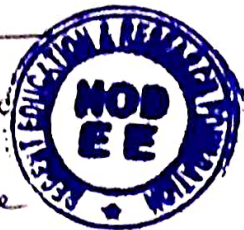
EE - 3rd YR (B.Tech)
(Name and signature of the
Applicant)

Bidyut Kumar Ghosh

(Name and signature of the
Head of the Department)

Passed for payment... 5301/-
(In Words) Five thousand three
hundred one only

[Signature]
Principal
RERFGI, Barrackpore





Regent Education & Research Foundation Group of Institutions

R&D PROJECT PROPOSAL

(To be filled by the applicant)

1. Title of the project: TRAFFIC BLINKER LIGHT by SOLAR SYSTEM
2. Name of the Applicant: DR. SUMAN KUMAR DEY
3. Name, Designation, Affiliation of Principal Investigator:

DR. SUMAN KUMAR DEY
Associate Professor, REGENT EDUCATION & RESEARCH FOUNDATION
4. Name, Designation, Affiliation of Co-PI (if any): NA
5. Collaborating Institute (if any): NA
6. Broad Subject area of the Project Proposal (Ex. Electrical Engineering):

Electrical Engineering

7. Abstract (Maximum 150 words): Traffic Blinker Light is an autonomous LED Flashing system Its purpose is to warn motorist and emphasis them to speed control when reach close to school, fire station, military zone, village road, small town, pedestrian cross walk, diversions, blind or sharp turns where the motorist are unable to judge the route or direction and severe hazard ahead. It blinks (flash) at specified rate (can be customised). The solar panel receives the sunlight to generate electricity, and the controller of which is used for battery charging. The controller has functions of preventing inverted connection, inverted charging, excessive discharge, overcharging and overloading and automatic protection for short circuit, boasting features such as automatic identification of day and night, automatic detection of voltage, automatic storage battery protection, easy installation and no pollution. The battery discharges electricity to the signal machine, transmitter, receiver and signal light via the controller.
8. Total Duration (Months): 3 months
9. Plan of Work: (500 characters):

1st Month: Fabrication of solar panel and control unit.

2nd Month: Connection of solar panels and battery storage unit to the signal machine, transmitter, receiver and signal light.

3rd Month: Trial of system and completion of project.

10. Do you need any Instruments/ facilities outside the Institute(List out within 500 characters):

Sl. No.	Name	Description
1.	SOLAR PANEL	Components required for fabrication of model
2.	CHARGE CONTROLLER	Components required for fabrication of model
3.	BATTERY	Components required for fabrication of model
4.	RELAY	Components required for fabrication of model
5.	SIGNAL LIGHT	Components required for fabrication of model
6.	POLE	Components required for fabrication of model
7.	BATTERY MOUNTING BOX	Components required for fabrication of model

11. Total estimated cost (In Rupees and in Words): Rs. 7900/- (Rupees seven thousand nine hundred only).

12. Summary of the budget

Items	BUDGET (In Rupees)			
	1st Month	2nd Month	3rd Month	Total
Year				
A. Recurring:	b. 1600	0	0	1600
a. Remunerations				
b. Consumables				
c. Travel				
d. Othercosts				
B. Non-recurring Permanent equipment/ publication/software*	0	6300	0	6300
Grand Total (A+B)	1600	6300	0	7900

Date..... 22/2/22

Place..... RERF

Issued for payment..... 7900/-
(In Words)..... Seven thousand
nine hundred only

Sayan Exha
(Name and signature of the Applicant)

Principal
RERFGI, Barrackpore
(Name and signature of Head of the Department)





Regent Education & Research Foundation Group of Institutions

R&D PROJECT PROPOSAL

(To be filled by the applicant)

1. **Title of the project:** Hybrid crow-search algorithm with particle swarm optimization in load frequency control (LFC).

2. **Name of the Applicant:** Dr. Arindita Saha

3. **Name, Designation, Affiliation of Principal Investigator:** Dr. Lalit Chandra Saikia,

Associate Professor, NIT Silchar

4. **Name, Designation, Affiliation of Co-PI (if any):** Dr. Arindita Saha

5. **Collaborating Institute (if any):** NA

6. **Broad Subject area of the Project Proposal:** The present invention generally relates to the field of hybridization techniques. More particular, the present invention relates to a field of managing power mismatch by achieving synchronization using hybridization techniques

7. **Abstract (Maximum 150 words):** A method for hybrid crow-search algorithm with particle swarm optimization (hCA-PSO), comprises of: setting values of flock size, iteration, random number, flight length, awareness probability and memory for the hCA-PSO; assigning a position and memory to crow of the hybrid crow-search algorithm; evaluating fitness using a transfer function of a tilt-integral-derivative with filter (TIDN) controller, wherein if random number is greater than awareness probability, then a new crow position is generated using the crow search algorithm, else a current position is retained; updating assigned memory with the new crow position if current retained position is greater than memory, else the current position is retained in the memory; and obtaining best position of crow with optimum controller parameters if number of interactions is less than maximum value of iterations providing as the setting values.

8. **Total Duration (Months):** 6

9. **Plan of Work (Max 500 Words):**

1st Year: Hybridization of crow search algorithm with particle swarm optimization in load frequency control→optimize the values of PID, PIDN and the proposed cascade TIDN controller→incorporate AC-HVDC tie line by replacing AC tie lines and to analyse its dynamic responses using finest controller.

2nd Year: NA

10. Do you need any Instruments/ facilities outside the Institute (Max 500 Words): NA

Sl. No.	Name	Description
1.	NA	NA

11. Total estimated cost (In Rupees and in Words): ₹ 30,000 (Rupees thirty thousand only)

12. Summary of the budget

Items	BUDGET (In Rupees)			
	1 st Year	2 nd Year	3 rd Year	Total
A. Recurring: a. Remunerations b. Consumables c. Travel d. Other costs	NA	NA	NA	NA
B. Non-recurring Permanent equipment/ publication/ software *	₹ 30,000	NA	NA	NA
Grand Total (A+B)	₹ 30,000	NA	NA	NA

Date: 15/11/21
Place: RERF

Received
By
Date
Place

Arindita Saha

Dr. Arindita Saha
Asst. Prof. EE Dept.
(Name and signature of the
Applicant)

Bidyut Kumar Ghosh

Bidyut Kumar Ghosh
HOD EE Dept.
(Name and signature of the
Head of the Department)



Passed for payment 30,000/-
(In Words) Thirty thousand only

Principal
RERFI, Barrackpore



Australian Government

IP Australia

Register of Patents

Patents Act 1990

Innovation Patent

Patent no: 2021105834

Patentee(s): Bhagat, Sanjeev Kumar of Department of Electrical Engineering
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National Institute of Technology Silchar Assam 788010 India

Inventor(s): Babu, Naladi Ram
Saikia, Lalit Chandra
Bhagat, Sanjeev Kumar
Saha, Arindita

Title: HYBRID CROW-SEARCH ALGORITHM WITH PARTICLE
SWARM OPTIMIZATION IN LOAD FREQUENCY CONTROL
(LFC).

Term: Eight years from 18 August 2021

Date Granted: 27 October 2021

Date Certified:

Date of Patent: 18 August 2021

Status: GRANTED

Expiry Date: 18 August 2029

Date Ceased:

Date Revoked:



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PO No : E-mail	PO Date : 31-03-2021
SO No : IPL-SO-2021-01935	SO Date : 31-03-2021
Place of Supply : 19-West Bengal	Payment Terms : Received
Customer Name : Regent Education & Research Foundation Billing Address : Bara Kanthalia, Barrackpore P.O.: Sewli Telini Para, North 24 Parganas Kolkata West Bengal, State Code: 19 PIN: 700121 India GSTIN: 19AABTR3825K2Z5	Customer Name : Regent Education & Research Foundation Shipping Address : Bara Kanthalia, Barrackpore P.O.: Sewli Telini Para, North 24 Parganas Kolkata West Bengal, State Code: 19 PIN: 700121 India GSTIN: 19AABTR3825K2Z5

Sr	Item	Description	HSN	Quantity	Rate	Amount
1	JST J-Gate Science and Technology	J-Gate Science and Technology 1st Apr 2021 to 31st Mar 2022	998431	Nos 1.0	₹ 62,424.00	₹ 62,424.00
	Total			1.0		62,424.00

Total ₹ 62,424.00

IGST @ 18% ₹ 11,236.32

Grand Total ₹ 73,660.00

In Words : INR Seventy Three Thousand, Six Hundred And Sixty only.

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Authorized Signatory

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