



IndiGuard Systems Pvt.Ltd.

Weaving dreams into Reality

Training / Design / Consultancy

CIN : U32109TN2020PTC135361

GSTIN : 33AAF616412A1Z8

Mobile : 94880 12038

Web : www.indiguards.in

Email : indiguards@gmail.com

Nr : 3/365 WEST STREET, KOLLANGARAI, NADUR POST, THANJAVUR - 614904

Date: 17.8.2022

To

The Principal,
Sri Bharathi Engineering College for Women,
Kaikkurichi
Pudukkottai - 622 303

Respected Madam,

We've received the college brochure and are pleased to know about the consultancy work carried out by Electrical and Electronics Engineering Department. Presently, we involved in design and development of "High Power Rating Three Phase Change Over System", for our client.

In this regard, we are interested to receive the quotation for the above-mentioned product from your end. This will be highly helpful to deliver the product to our client.

forwarded to

HOD / EEE



17/08/22

For INDIGUARD SYSTEMS (P) LTD

[Signature]
Director

[Signature]

Dr. S.THILAGAVATHI M.E., Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

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SRI BHARATHI ENGINEERING COLLEGE FOR WOMEN

(Approved by AICTE, New Delhi and Affiliated to Anna University, Chennai)
Pudukkottai - Aranthangi Road,
Kaikkurichi, Pudukkottai - 622 303.

To
R & D Manager,
IndiGuard Systems Private Limited,
No.3/365, Kollanagarai,
Thanjavur – 614 904

Date : 30.8.2022

Greetings - Sri Bharathi Engineering College for Women, Kaikkurichi,
Pudukkottai - 622 303.

Sub: Quotation for "High Power Rating Three Phase Change over system" – Reg

With reference to your letter dated 17.08.2022, regarding the Design and Development of High Power Rating Three Phase Change over System, and subsequent in-depth discussions, we hereby submit the official Quotation for your consideration and reply.

Thanking you

Sl. No.	Particulars	Quantity	Rate	Amount in Rs
1.	High Power Rating Three Phase Change Over System	35	3500	1,22,500
			Total Payable	1,22,500
In Words: One Lakh Twenty-TwoThousand and Five Hundred only				


PROJECT INVESTIGATOR


Dr. S. THILAGAVATHI M.E., Ph.D.,
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Kaikkurichi - 622 303, Pudukkottai Dt.


PRINCIPAL

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Nr : 3/365 WEST STREET, KOLLANGARAI, NADUR POST, THANJAVUR - 614904

Date: 9.9.2022

From

R & D Manager,
IndiGuard Systems Private Limited,
No.3/365, Kollanagarai,
Thanjavur - 614 904

To

The Principal,
Sri Bharathi Engineering College for Women,
Kaikkurichi
Pudukkottai - 622 303

HOD / EEE
Follow the timeframe
of 90 days.
J. Srinivasan

Respected Madam,

Regarding your quotation dated September 30th August 2022, we are pleased to inform you that we have accepted your proposal for the development of the "High Power Rating Three Phase Change Over System" as outlined in the quotation.

After careful consideration and discussions with our project investment team, we are prepared to allocate the necessary funds for the design and development of over 35 numbers of this system.

We have authorized a total budget of Rs 1,22,500 for the product development associated with the aforementioned quantity. It is essential that this work is completed within the agreed timeframe of 90 days. On any assistance or any inquiries, please do not hesitate to reach out to us at your convenience.

Dr. S. THILAGAVATHI M.E., Ph.D.,
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For INDIGUARD SYSTEMS (P) LTD

J. Srinivasan
Director
09/09/2022

Mobile : 94880 12038 Web : www.indiguard.in



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DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

PRODUCT DEVELOPMENT CONSULTANCY WORK

REPORT

High Power Rating Three Phase Change Over System

SUBMITTED

TO

IndiGuard Systems Private Limited,

No. 3/365, Kollangarai,

Thanjavur – 614 904

REPORT DATE: 8.12.2022

Dr. S. THILAGAVATHI M.E., Ph.D.,
PRINCIPAL

**SRI BHARATHI ENGINEERING
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Kaikkurichi - 622 303, Pudukkottai Dt.**

High Power Rating Three Phase Change Over System

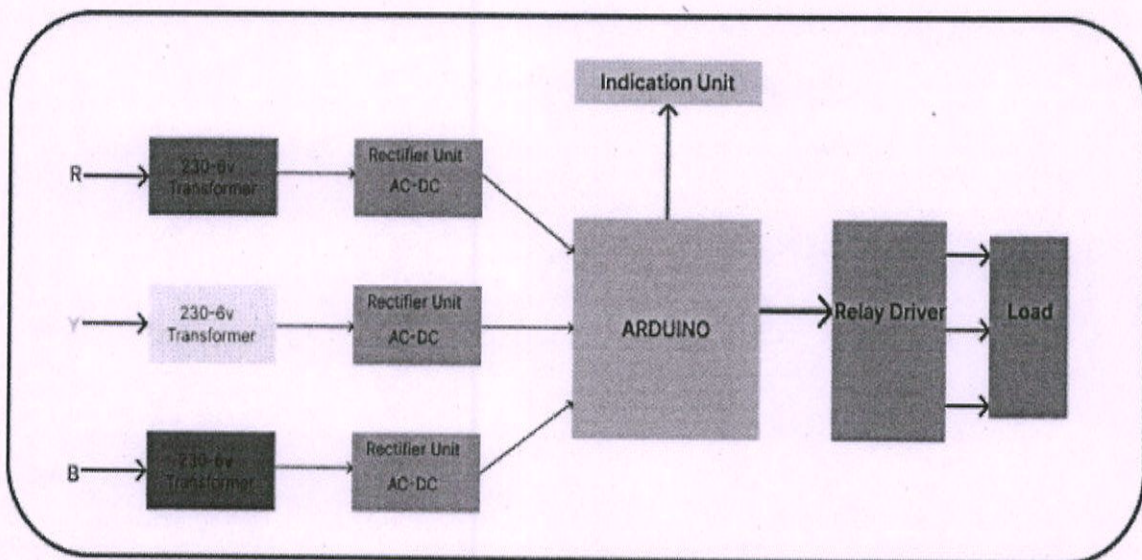
Aim:

The proposed work aims to design and develop an automatic RYB phase changer circuit that can change the phase sequence from one configuration to another while also providing neutral and earth disconnect indication.

The main objectives of this work are:

- To design a phase changer circuit that is capable of changing the phase sequence from RYB to other configurations while ensuring safe and reliable operation.
- To develop a circuit that can detect the absence of neutral and provide indication to the user.
- To develop a circuit that can detect the presence of earth and provide indication to the user.

Block Diagram:



Software Requirement: Arduino Uno IDE

Hardware Requirement:

1. Arduino Uno
2. Bridge Rectifier
4. Step Down Transformer


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5. IC LM 7805
6. Four Channel Relay Module.
7. Pilot Lamps, Capacitors.

Description:

An automated fault detection system has been developed to actively identify and pinpoint electrical line faults in real-time, enabling swift user notifications for necessary repairs or corrective actions through indicator lamps. The system's core functionality relies on a programmed microcontroller, which employs sophisticated software processes to detect and categorize line faults.

In the event of a fault occurring in the R line, the Y line steps in to supply power to the R line through software-based interventions, with an accompanying indication lamp signalling the fault. If both the R and Y lines experience issues, the B line takes charge, supplying power to both lines while activating indication lamps 2 and 3 to denote the faults.

Furthermore, the system is equipped to respond to deviations in voltage levels. When any one of the phases registers an under-voltage condition, it can seamlessly switch to a healthy phase. Conversely, if higher voltage is detected, the system can shift to a phase with normal voltage levels. In case of a neutral disconnection in any phase, the entire system disconnects from the power supply. Additionally, if the earth conductor become disconnected or fail to provide an adequate return path, an indicator lamp promptly informs the user of this issue.

Cost Estimation:

Sl. No	Description	Quantity	Cost
1.	Arduino Uno – Microcontroller ATMEGA 328p	01	750
2.	IC LM 7805	01	80
3.	Step Down transformer	03	300
4.	Rectifier	03	45
5.	4- Channel Relay	01	250


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7.	Miscellaneous	-	200
	Design Cost	-	500
	Total		3500

Cost Per Product: Rs. 3500 -/.

Number of Products Delivered: 35

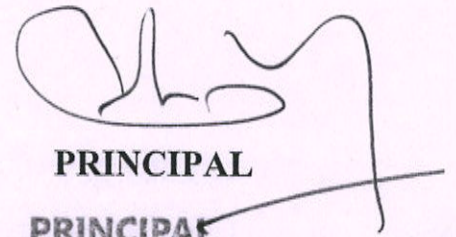
Total Cost of the Project: Rs. 1,22,500 -/.

Sanctioned Grant: Rs. 1,22,500 -/.



PROJECT INVESTIGATOR

[T. PARTHIBAN, AP/EEE]



PRINCIPAL

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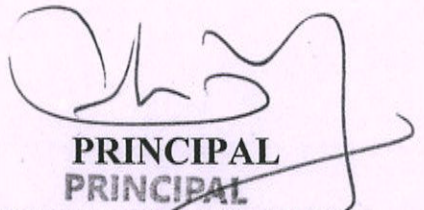
Date : 8/12/2022

Utilization Certificate

Certified that the amount of rupees Rs.1, 22,500 (One Lakh Twenty Two Thousand and Five Hundred only) was sanctioned by IndiGuard Systems Private Limited, Thanjavur during the academic year (2022-2023), in favour of Department of Electrical and Electronics Engineering Sri Bharathi Engineering College for Women, Kaikkurichi, Pudukkottai has been fully utilized for product development of High Power Rating Three phase Change Over System. The purpose of amount sanctioned has been fulfilled and delivered as per conditions of grant were satisfied.


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[T.PARTHIBAN, AP/EEE]


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