SRI VENKATESWARA

COLLEGE OF ENGINEERING AND TECHNOLOGY

Thirupachur-631203, Tiruvallur TK & DT

Approved by AICTE New Delhi & Affiliated to Anna University, Chennai

(A Telugu Minority Institution)

List of Students Under taking Project /Work for the Academic Year 2022-2023

Program Name: POWER ELECTRONICS AND DRIVE

MINI PROJECT BATCH LIST 2022-2023

S.NO	REG NUMBER	STUDENT NAME	PROJECT TITLE	INTERNAL GUIDE
1	112422415001	G.Madhiyazhagan	Single phase dual converter using SCR and connected with load	Mrs S.Geetha/AP
2	112422415004	S.Sugadevan	Water over flow Alarm of an overhead tank using BC547Transistor	Mr.M.Namachivayam/ap
3	112422415003	S.Sakthivel	High power inverting buck boost converter using TL494 IC	Dr.M.Sivasubramanian/ASP

PRINCIPAL
Sri Venkateswara College of
Engineering and Technology,
Thirupachur, Thiruvallur - 631 203

SRI VENKATESWARA COLLEGE OF ENGG. AND TECH.
Thirupachur
Pin : 631 203

SINGLE PHASE DUAL CONVERTER USING SCR AND CONNECTED WITH LOAD

A THESIS

Submitted by

MATHIYAZAGAN.G
112422415001

In partial fulfillment of the requirements for the award of the degree of

MASTER OF ENGINEERING IN
POWER ELECTRONICS AND DRIVE

DEPARTMENT OF ELECTRICAL AND ELECTRONICS
ENGINEERING SRI VENKATESWARA COLLEGE OF ENGINEERING
AND TECHNOLOGY, THIRUPACHUR
ANNA UNIVERSITY: CHENNA-I600025

JULY 2023

ANNA UNIVERSITY, CHENNAI

BONAFIDE CERTIFICATE

Certified that this project report titled "SINGLE PHASE DUAL CONVERTER USING SCR AND CONNECTED WITH LOAD." is the Bonafede \work of MR. MATHIYAZAGAN.G(112422415001) who carried out the project work under my supervision. Certified further that to the best of my knowledge the work reported herein does not form part of any other thesis or dissertation on the basis of which a degree or award was conferred on an earlier occasion on this or any other candidate.

S. Geetha 12/7/23

Signature of the HOD with date

Mrs.GEETHA.S

Associate Professor

Department of Electrical and

Electronics Engineering

S. Geetha 12/7/23

Signature of the Supervisor with date

Mrs.GEETHA.S

Associate Professor

Department of Electrical and

Electronics Engineering

Submitted for the University PX4212 DESIGN LABORATORY FOR POWER ELECTRONICS SYSTEMS examinations on ..13-07-2023..... at Sri Venkateswara college of engineering and technology.

SRI VENKATESWARA COLLEGE OF ENGG AND TECH Thirupachur Pin : 631 203

PRINCIPAL
Sri Venkateswara College of
Engineering and Technology
Thirupachur, Thiruvallur - 631 203

12/7/23

INTERNALEXAMINER

14/7/23

EXTERNALEXAMINER

ACKNOWLEDGEMENT

My wholehearted and sincere thanks to the "ALMIGHTY" for enabling me to do my research successfully.

First and foremost, I express my hearty sincerity to our Chairman Dr.S.K. PURUSOTHAMAN and our Principal Dr.S.PALANI for providing their appreciationand facilities which made the experience a pleasant one.

I would like to express my sincere gratitude to my philosopher, Head of the department, and Supervisor, Ms.GEETHA.S, Associate Professor at, the Department of Electrical and Electronics Engineering for his Continues encouragement, Constructive and precise comments on my research work. His intellectual inquiry, friendly approach, and sustained encouragement catalyzed the progress of the research work.

I would like to express my sincere thanks to Mr.M.NAMACHIVAYAM, Assistant Professor, and all faculties in the Electrical and Electronics Engineering department for his encouragement, guidance, and support during this research work.

SRI VENKATESWARA COLLEGE OF ENGG AND TECH
Thirupachur
Pin : 631 203

PRINCIPAL
Sri Venkateswara College of
Engineering and Technology,
Thirupachur, Thiruvallur-631 203

MATHIYAZAGAN.G

ABSTRACT

Dc motors are widely used in applications requiring adjustable speed, good speed regulation and frequent starting, braking and reversing. Important applications are rolling mills, paper mills, mine winders, hoists, machine tools, traction, textile mills etc. Today variable speed application is dominated by dc drives because of lower cost, reliability and simple controlled drives used in industries. For this purpose, we are designing a model that can control the speed of a DC motor and to control its speed different techniques can be used. Here we are designing a dual converter using thyristors to control the speed of our DC motor by controlling its firing angle

SRI VENKATESWARA COLLEGE OF ENGG AND TECH. Thirupachur Pin : 631 203

PRINCIPAL
Sri Venkateswara College of
Engineering and Technology,
Thirupachur, Thiruvallur - 631 203

6.3. CONCLUSION

After collecting the required data for the project, data analysis is carried out. It was observed that previous scheme consumes less power but provides less torque thus not applicable in industries. Following points are also under taken: 1). The speed of a dc motor has been successfully controlled by using SCR as a dual converter. 2). Under operating condition drive run successfully. 3). Microcontroller based design is done successfully. 4). Designing of firing angle with full speed is done. A 1 HP DC motor specification is taken and corresponding parameters are found out from derived design approach 5). Interfacing drive with computer.

PRINCIPAL
Sri Venkateswara College of
Engineering and Technology,
Thirupachur, Thiruvallur - 631 203

SRI VENKATESWARA COLLEGE OF ENGG AND TECH
Thirupachur
Pin : 631 203

HIGH POWER INVERTING BUCK BOOST CONVERTER USING TL494 IC

ATHESIS MINI

PROJECT

Submitted by

SAKTHIVEL.S

112422415002

In partial fulfilment of the requirements for the award of the degree

Of

MASTER OF ENGINEERING IN

POWER ELECTRONICS AND DRIVES

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING SRI VENKATESWARA COLLEGE OF ENGINEERING AND TECHNOLOGY, THIRUPACHUR

ANNA UNIVERSITY: CHENNAI 600025 MAY 2023

SRI VENKATESWARA COLLEGE OF ENGG AND TECH. Thirupachur Pin : 631 203

PRINCIPAL
Sri Venkateswara College of Engineering and Technology,
Thirupachur, Thiruvallur - 631 203

ANNA UNIVERSITY, CHENNAI

BONAFIDE CERTIFICATE

Certified that this project report titled "HIGH POWER INVERTING BUCK BOOST CONVERTER USING TL494 IC" is the bonafide work of **Mr.SAKTHIVEL.S (112422415002)** who carried out the project work under my supervision. Certified further that to the best of my knowledge the work reported herein does not form part of any other thesis or dissertation on the basis of which a degree or award was conferred on an earlier occasion on this or any other candidate.

12/7/23

Signature of the HOD with date

Mrs.S.Geetha M.E

Associate Professor

Department of Electrical and Electronics Engineering

12/7/23

Signature of the Supervisor with date

Dr. M.Sivasubramanian . M.E, Phd.

Associate Professor

Department of Electrical and Electronics Engineering

Submitted for the University PX4212 DESIGN LABORATORY FOR POWER ELECTRONICS SYSTEMS examinations on ..... at

Sri Venkateshwara College of Engineering and Technology.

INTERNAL EXAMINER

SRI VENKATESWARA COLLEGE OF ENGG. AND TECH. Thirupachur Pin : 631 203

PRINCIPAL
Sri Venkateswara College of Engineering and Technology,
Thirupachur, Thiruvallur - 631 203

14/7/23

EXTERNAL EXAMINER

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SAKTHIVEL. S

PRINCIPAL
Sri Venkateswara College of
Engineering and Technology,
Thirupachur, Thiruvallur - 631 203

SRI VENKATESWARA COLLEGE OF ENGG. AND TECH.
Thirupachur
Pin : 631 203

ABSTRACT

his work introduces a new non-isolated buck-boost DC-DC converter. Interleaved configuration of the suggested structure increases the voltage conversion ratio. The voltage rate of the suggested converter can be stepped-up and stepped down for lower values of duty-cycle, which causes to decrease in the conduction losses of the system. The voltage conversion ratio of the recommended structure is provided with low maximum voltage throughout the semiconductor elements. Additionally, utilizing only one power switch facilitates converter control. Using a single power MOSFET with small conducting resistance, RDS-ON, increases the overall efficiency of the recommended topology. To verify the performance of the presented converter, technical description, mathematical survey, and comparison investigation with similar structures are provided in the literature. Finally, a laboratory scheme with a 40W load power rate at 50 kHz switching frequency is carried out to demonstrate the effectiveness of the proposed converter. Here using **TL494 IC** using to **MOSFET, HIGH POWER INVERTING BUCK BOOST CONVERTER.** This project is mainly reducing power supply fluctuation and given variable voltage.

SRI VENKATESWARA COLLEGE OF ENGG. AND TECH. ★ Thirupachur Pin : 631 203

PRINCIPAL
Sri Venkateswara College of Engineering and Technology,
Thirupachur, Thiruvallur - 631 203

CONCLUSION

A new non-isolated buck-boost DC-DC converter. Interleaved configuration of the suggested structure increases the voltage conversion ratio. The voltage rate of the suggested converter can be stepped-up and stepped down for lower values of duty-cycle, which causes to decrease in the conduction losses of the system. The voltage conversion ratio of the recommended structure is provided with low maximum voltage throughout the semiconductor elements. Additionally, utilizing only one power switch facilitates converter control. Using a single power MOSFET was done.

PRINCIPAL
Sri Venkateswara College of
Engineering and Technology,
Thirupachur, Thiruvallur - 631 203

SRI VENKATESWARA COLLEGE OF ENGG AND TECH.
Thirupachur
Pin : 631 203

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After collecting the required data for the project, data analysis is carried out. It was observed that previous scheme consumes less power but provides less torque thus not applicable in industries. Following points are also under taken: 1). The speed of a dc motor has been successfully controlled by using SCR as a dual converter. 2). Under operating condition drive run successfully. 3). Microcontroller based design is done successfully. 4). Designing of firing angle with full speed is done. A 1 HP DC motor specification is taken and corresponding parameters are found out from derived design approach 5). Interfacing drive with computer.

SRI VENKATESWARA COLLEGE OF ENGG AND TECH. Thirupachur Pin : 631 203

PRINCIPAL
Sri Venkateswara College of
Engineering and Technology,
Thirupachur, Thiruvallur - 631 203

WATER OVERFLOW ALARM OF AN OVER HEAD TANK USING BC547 TRANSISTOR

A THESIS

Submitted by

SUGADEVAN. S

(Reg.No. 112422415004)

in partial fulfilment of the requirements for the award degree of

MASTER OF ENGINEERING IN

POWER ELECTRONICS AND DRIVES

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

SRI VENKATESWARA COLLEGE OF ENGINEERING AND TECHNOLOGY, THIRUPACHUR

ANNA UNIVERSITY: CHENNAI 600025

JULY 2023

PRINCIPAL
Sri Venkateswara College of Engineering and Technology,
Thirupachur, Thiruvallur - 631 203

ANNA UNIVERSITY, CHENNAI

BONAFIDE CERTIFICATE

Certified that this project report titled " **WATER OVERFLOW ALARM OF AN OVER HEAD TANK USING BC547 TRANSISTOR** " is the bonafide work of **Mr. SUGADEVAN.S (112422415004)** who carried out the project work under my supervision. Certified further that to the best of my knowledge the work reported herein does not form part of any other thesis or dissertation on the basis of which a degree or award was conferred on an earlier occasion on this or any other candidate

12/7/23

Signature of the HOD with date

Ms.S.Geetha M.E

Assistant professor

Department of Electrical and

Electronics Engineering

12/7/23

Signature of the Supervisor with date

Mr. M. Namachivayam M.E

Assistant professor

Department of Electrical and

Electronics Engineering

Submitted for the University PX4212 DESIGN LABORATORY FOR POWER ELECTRONICS SYSTEMS examinations on ..14/7/23.. **at Sri Venkateswara college of engineering and technology.**

PRINCIPAL
Sri Venkateswara College of
Engineering and Technology,
Thirupachur, Thiruvallur Dt. 631 203

14/7/23

INTERNAL EXAMINER

14/7/23

EXTERNAL EXAMINER

Thirupachur Pin : 631 203

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My wholehearted and sincere thanks to the "ALMIGHTY" for enabling me to do my research successfully

We wish to express our sincere thanks to our founder chairman, Shri. **Dr.S.K. PURUSOTHAMAN,ME.,Phd.,** and our Principal **Dr.s.PALANI, ME.,Phd** of our college for providing dexterities made available in the institution.

I would like to express my sincere gratitude to my philosopher, Head of the department, and Supervisor, **Ms.S.GEETHA,M.E.,** Assistance Professor at the Department of Electrical and Electronics Engineering for his Continues encouragement. Constructive and precise comments on my research work. His intellectual inquiry, friendly approach, and sustained encouragement catalyzed the progress of the research work.

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SUGADEVAN.S

SRI VENKATESWARA COLLEGE OF ENGG. AND TECH. Thirupachur Pin : 631 203

PRINCIPAL
Sri Venkateswara College of Engineering and Technology,
Thirupachur, Thiruvallur - 631 203

ABSTRACT

The project titled "Water Tank Level Indicator with LED and Buzzer using BC547 Transistor" aims to design and implement a simple yet effective system for monitoring the water level in a tank. The project utilizes basic electronic components such as a BC547 transistor, LEDs, and a buzzer to provide visual and auditory indications of the water level.The system employs a series of sensors placed at different water levels in the tank, which are connected to the base of the BC547 transistor. The transistor acts as a switch, controlling the flow of current through the LEDs and the buzzer. As the water level changes, the sensors trigger the corresponding transistor, activating the LEDs and buzzer accordingly.

PRINCIPAL
Sri Venkateswara College of
Engineering and Technology,
Thirupachur, Thiruvallur - 631 203

SRI VENKATESWARA COLLEGE OF ENGG AND TECH
Thirupachur
Pin : 631 203

CHAPTER 5

CONCLUSION AND FUTURE SCOPE

5.1 CONCLUTION

In conclusion, the project titled "Autonomic Water Level Indicator System with BC547 Transistor" aims to provide an efficient and reliable solution for monitoring water levels in various applications. The use of BC547 transistor, a widely available and cost-effective component, ensures the system's affordability and ease of implementation.

The autonomic feature of the system allows it to operate independently, continuously monitoring water levels and providing accurate indications. This eliminates the need for manual supervision, making it suitable for both residential and industrial settings.

By employing the BC547 transistor as a key component, the system can effectively detect water levels and trigger appropriate actions, such as activating alarms or controlling pumps. The transistor's ability to act as a switch enhances the system's responsiveness and reliability.

overall, the autonomic water level indicator system with BC547 transistor offers a practical and economical solution for water level monitoring. It promotes efficient resource management, early detection of water shortages or flooding, and helps prevent potential damages or wastage. This project contributes to the development of smart systems that can enhance water conservation efforts and improve operational efficiency in various sectors.

5.2. FUTURE SCOPE

the water level indicator system with a BC547 transistor is a simple and popular project in the field of electronics. It is primarily designed to monitor and display the water level in a tank or container. While the BC547 transistor is a