

# **DEVELOPMENT OF SMART CONTROLLER** **FOR HOME APPLIANCES**

## **TEQIP-INTERN:**

**GUNJAN VERMA**

## **ABOUT:**

- **EDUCATION:**

I am an undergraduate in electronics and communication engineering. I am pursuing my Btech from **ATAL BIHARI VAJPAYEE GOVT. INSTITUTE OF ENGINEERING AND TECHNOLOGY, SHIMLA(H.P),INDIA.**

- **WORKING UNDER FACULTY SUPERVISOR:**

**Dr. Gajenderanath Chowdhary**

**Assistant Professor, Department of Electrical Engineering, IIT Hyderabad**

- **GUIDED BY:**

**Manikanta**

**Project Associate,Department of Electrical Engineering, IIT Hyderabad**

- **INTERNSHIP PROVIDED BY:**

**Technical Education Quality Improvement Programme (TEQIP) Cell, IIT Hyderabad.**

- **INTERNSHIP DURATION:**

**One month(11 June 2019 - 10 July 2019)**

## **ABSTRACT:**

Making liquids using a muddler or a churner is a traditional technique. So the main motive of this project is to construct an electrical churner that works similar to the traditional muddler.

The taste and nutrition in the buttermilk is retained due to the continuous churning in back and fro directions with some particular speed and rotation. The traditional churner has one disadvantage that it requires a lot of human energy (human sitting).

The main objective of this project is to reduce the human work and produce something that is efficient enough to churn in both the directions with controllable speeds and number of rotations.

## **ACKNOWLEDGEMENT:**

I am very grateful to the TEQIP team and also to the MHRD, Govt. of India for such an excellent internship program.

I would like to thank my guide Dr. Gajenderanath Chowdhary and my mentor Mr. Manikanta at IIT Hyderabad for time to time help and guidance.

## **MY CONTRIBUTION:**

There are various electrical hand blenders and churners in the market but the main problem with them is either they are having a huge size due to huge motor, aren't having speed and rotation controls or are only rotating in one direction.

Firstly we came up with a basic idea of how to implement things using schematic diagram using different components (timer circuit, dpdt, motor driver IC, voltage regulators, flip-flops, motors) useful for achievement of the required

objective. We worked under this project for one month and came up with a finalised circuit.

## **CONCLUSION:**

So we designed a circuit capable of churning equally in both the directions having speed and rotation controls.

## **LEARNING ACCOMPLISHMENTS:**

I started my internship with some basic knowledge of circuit designing and basic electrical components. This internship program has been a great learning period for me as I got to learn about various components like DPDT (Double Pole Double Throw), regulators, 555-timer IC, motor driver IC, flip-flops etc. We also learnt to maintain a 50% duty cycle of a signal.

In this period we also learnt about various circuit designing softwares like X-circuits, Proteus and OrCAD capture. Additionally we got to learn about PCB and its designing using Cadence software. Afterwards we gained knowledge of how to solder the components on the finalised PCB. Overall it was a great learning process being here for one month.