Energy Management System for Smart Class Rooms

The main aim of the project is to design an energy management system for smart class rooms using IOT and RFID technology.

The main controlling device of the project is Arduino UNO microcontroller. RFID reader and TAGS, Devices, LCD display, ESP8266 WI-FI module is interfaced to the arduino UNO.

To enter/exit the college student need to scan the RFID tag on RFID reader, then the command will go to the microcontroller, then microcontroller will update the details into the google sheet through esp8266wi-fi module also display the student count on LCD. Microcontroller will monitor the temperature and student strength, based on that it will control the devices like light and fan automatically. Here relays work as switch to ON/OFF the devices. To achieve this task microcontroller loaded program written in embedded C language.

Main objective of this project:

- To entrance/exit the class room using RFID technology.
- Monitoring Student count on LCD display.
- Using IOT for sending the details like enter and exit... into the google sheet.
- Automatic devices control based on strength and temperature.
- Automatic temperature detection using sensor.

The main building blocks of the project are:

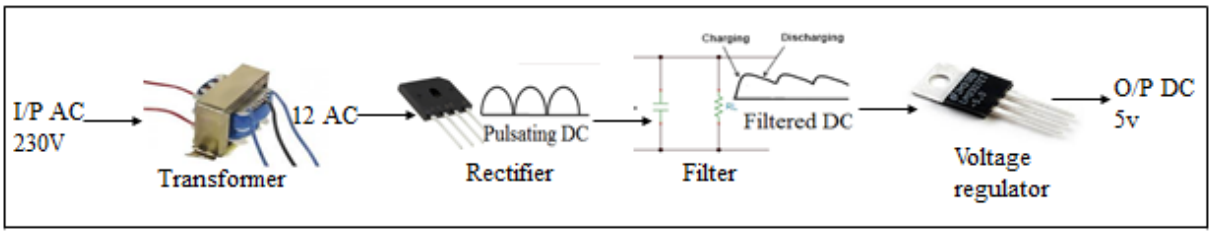
- Regulated Power Supply.
- Arduino UNO.
- RFID reader and tags.

- ESP8266 wi-fi module.
- LCD display.
- Two lights along with relay.
- Two Fans with driver circuit.

Software's used:

1. Arduino IDE for compiling and dumping code into controller
2. Express SCH for Circuit design.

Regulated power supply:



Block diagram:

Block diagram of the project