

# ANGEL TECHNO HUB SOLUTIONS

FINAL YEAR PROJECTS, EMBEDDED IOT PLC TRAINING, CRASH COURSES, INTERNSHIP, JOB ASSISTANCE  
PH NO: 9822039159, 7758831877

## 1. ARDUINO NANO BASED BMS WITH BALANCE CHARGING TECHNIQUE

### Abstract:-

In This Projects We Are Using Balance Charging Technique with Full Protection for EV Li-Ion Cells with Over Voltage Indication and Temp Monitoring Using Arduino Nano with Current Monitor

#### □ COMPONENT LIST:-

- LCD 16X2 I2C
- ARDUINO NANO
- LI-ION BATTERY PACK X3
- VOLTAGE DIVIDER CIRCUIT
- POWER SUPPLY
- LI-ION 3S/20A BMS MODULE
- CURRENT SENSOR

#### □ Advantages:-

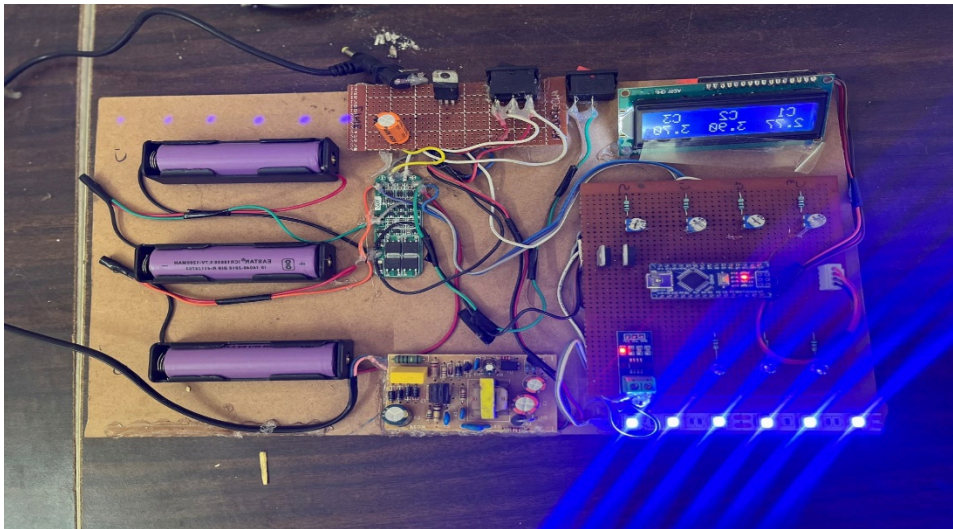
- Useful For EV Based Battery Management System

#### □ Disadvantages:-

- Initial cost high as per battery pack

#### □ Application:-

- EV based vehicle



## 2. ARDUINO NANO AND IOT BASED ADVANCE, BMS SYSTEM

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## Abstract

In this project we are using IOT based technology to remotely monitor EV battery's pack health like voltage, temp, over voltage, charger and balancing charging using BMS module with sending data to cloud on thing speak.

### Components

- LCD
- ARDUINO NANO
- BMS KIT
- BATTERY PACK X3
- VOLTAGE MEASUREMENT
- POWER SUPPLY
- LED X3
- ESP32

### Advantages: -

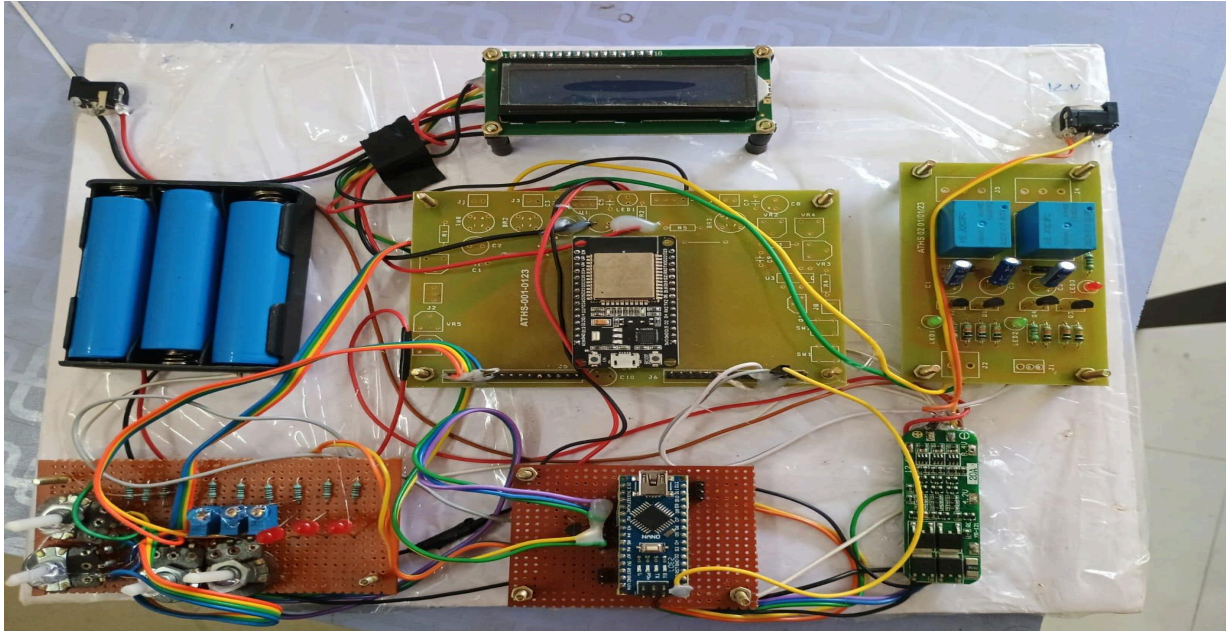
- Useful for remote or android

### Disadvantages: -

- Depend signal on internet

### Application: -

- EV battery pack



## 3. MULTI INDUSTRIAL FAULT SYSTEM USING IOT

### Abstract

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In this Project we are using multilingual display industry which is going to monitor different sensor parameter which are having highest priority for a set point the display gives the readings of each sensor when cross the level hence we get the real time clock reference which indicates the number of birthday.

## COMPONENTS

- LCD
- ESP32
- FUSE
- TEMPERATURE
- AUTO TRIP RALAY
- RELAY
- UNDER VOLT
- VARIABLE TRANS

### Advantages: -

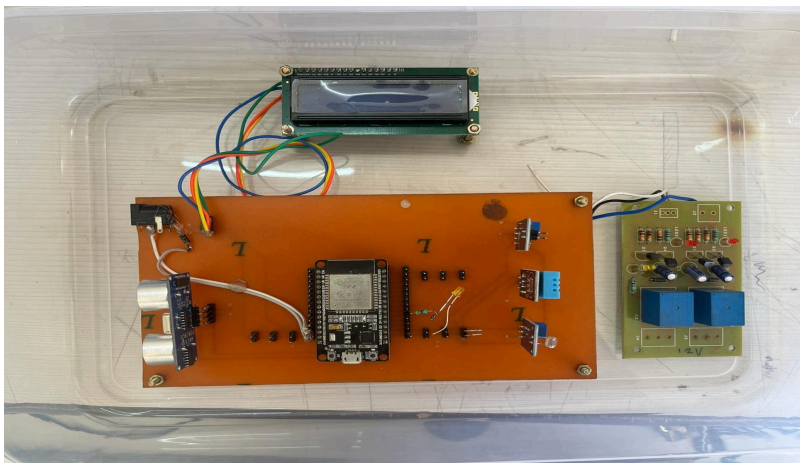
- Useful for industrial machine fault using IOT technology

### Disadvantages: -

- Additional circuit required for interface

### Application: -

- Useful for all control panels



## 4. HOME AUTOMATION USING BLUETOOTH

### Abstract

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This project is very simple but effective for home appliances control we can on/off device remotely using Bluetooth control

## ❖ COMPONENTS:-

- ESP32
- LCD I2C
- RELAY X2
- BLUETOOTH MODULE HC05
- DHT11 TEMP
- POWER SUPPLY 5V
- ARDUINO NANO

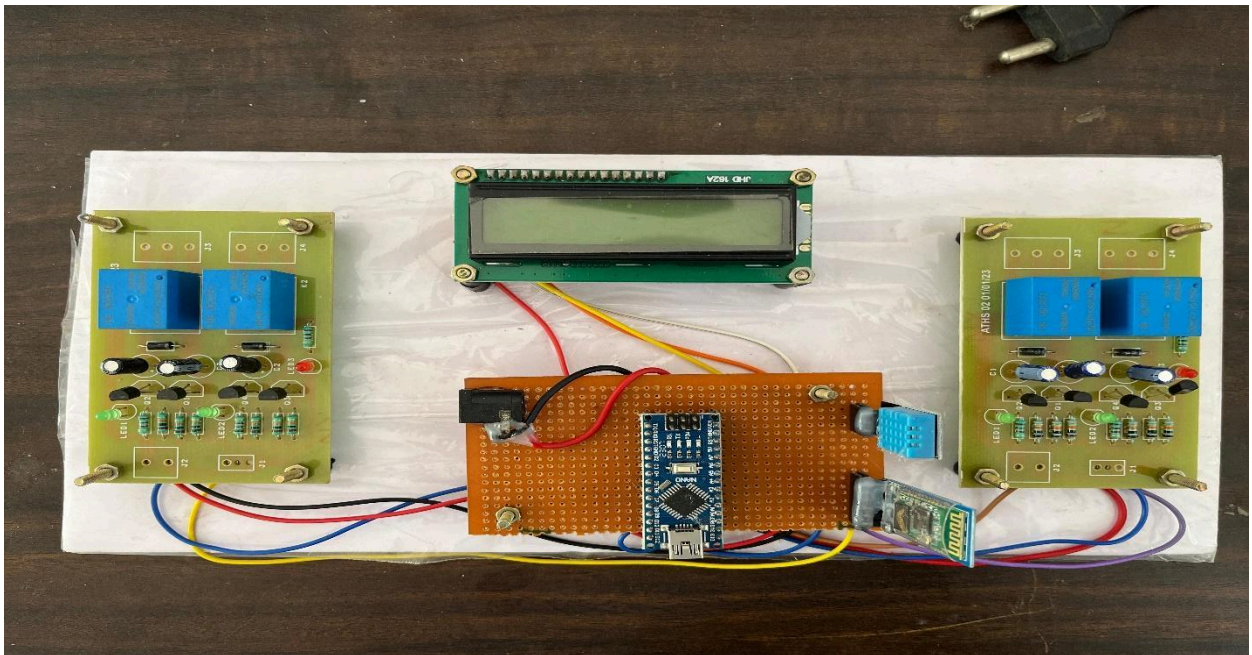
## ❑ ADVANTAGES:-

- EASY TO OPERATE FAN, LIGHT, MOTOR, REMOTELY

## ❑ DISADVANTAGES:-

- INITIAL COST HIGH
- RANGE LIMITATION

- ❑ **Application:** - All residence / apartment



## 5. IOT BASED CAR PARKING SYSTEM (3 SLOTS)

### Abstract

This project is very useful to park car. Having info on android app using IOT technology so that user can get info that car parking space available

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or not the project has auto gate door control with IR sensors for car sensing using esp32 advance controller

### **COMPONENTS:-**

- LCD
- ESP32
- RELAY
- SERVO MOTOR
- IR SENSOR MODULE X4
- POWER SUPPLY 5V

### **Advantages: -**

- Pre detection of car space

### **Disadvantages: -**

- Number of sensors and wiring limits the movement in car parking space

### **Application: -**

- In apartment/ malls / theatres etc.

## **6. MAXIMUM DEMAND ALGO FOR POWER, REDUCTION USING IOT ADVANCE TECHNIQUES**

**Abstract:** - this is one of the best project which can reduce band gap between power generation and consumption in order we are using MDT algo with using ESP32 controller which controls power management with power failure

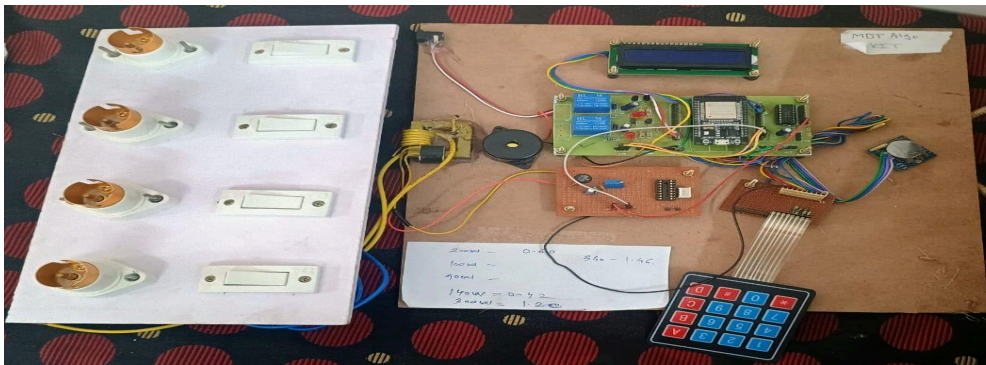
### **COMPONENTS**

- LCD

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- ESP32
- RELAY
- DS 1307
- CT
- 3008 ADC
- TOUCH KEYPAD
- LOAD PANNEL
- CT INTERFACE CIRCUIT
- POWER SUPPLY 5V
- Advantages: -**
  - Useful to all residence/ bungalow/ office to reduce electricity bills
- Disadvantages: -**
  - Considers the most complicated hardware software so initial cost high
- Application: -**
  - MSCB board/ power distribution lines



## 7. IOT based 3 phase fault in LL & LG with voltage protections

**Abstract:-** In this project we are finding three phase faults in transmission lines in order to find on IOT device the line to line and line to ground faults with line voltage says with protection this project is based on ESP32 controller using internet of things

- COMPONENTS**
  - ESP32

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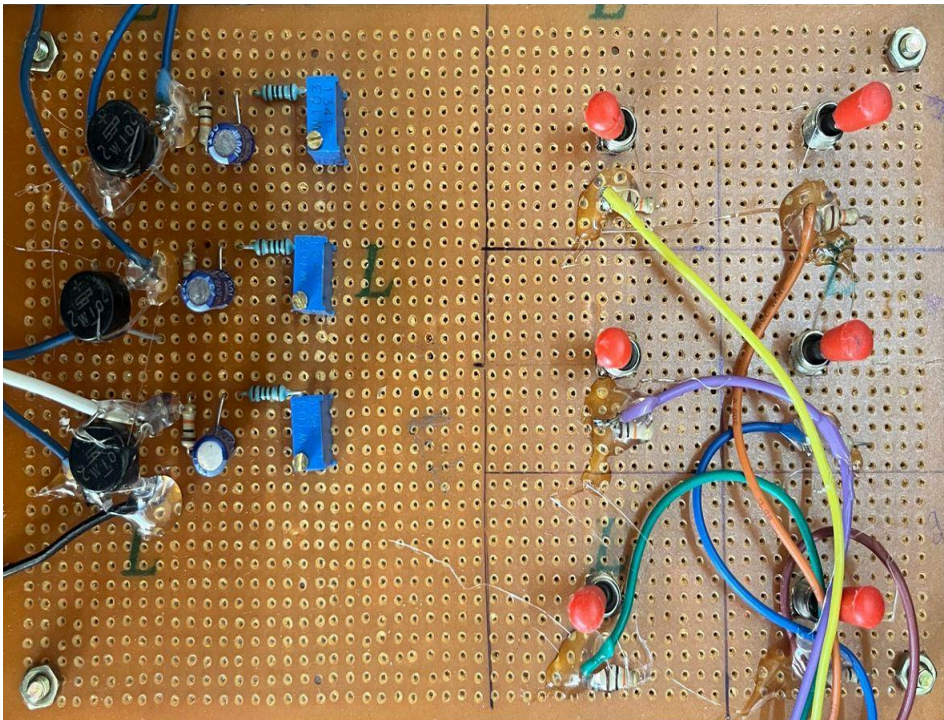
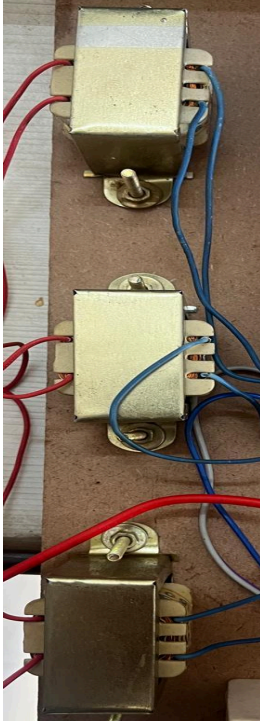
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- TRANSFORMER X3
- RELAY X3
- LCD
- BUZZER
- POWER SUPPLY 5V
- Advantages:** -
  - Useful to local's type of faults
- Disadvantages:** -
  - Need to find different parameters
- Application:** -
  - 3 phase transmission line

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## 8. IOT based woman SECURITY system

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**Abstract:-** here in this project we are using fully automated protection system especially in regards for woman security in order to protect in danger situations this project gives SMS with map location with alerts and notification, with emergency switch in panic condition along with heart rate, spo2 blood oxygen and the panic skin response sensors

## COMPONENTS:-

- ESP32
- LCD 16X2
- RX TX RF MODULE
- GSR STRESS SENSOR
- HEART RATE/SPO2 SENSOR (MAX30100)
- GSM/GPS MODULE SIM808
- RELAY INTERFACE
- POWER SUPPLY +5V,+12V

## Advantages: -

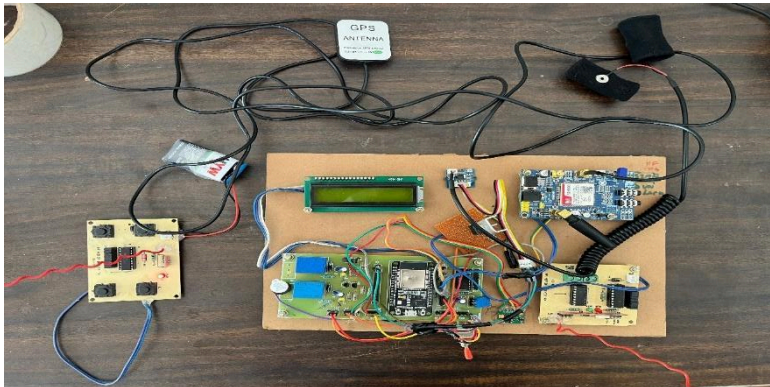
- Very useful for woman's, girls

## Disadvantages: -

- Need compact circuit

## Application: -

- In panic situation for woman's



## 9. IOT based smart meter with auto billing and cut-off using android

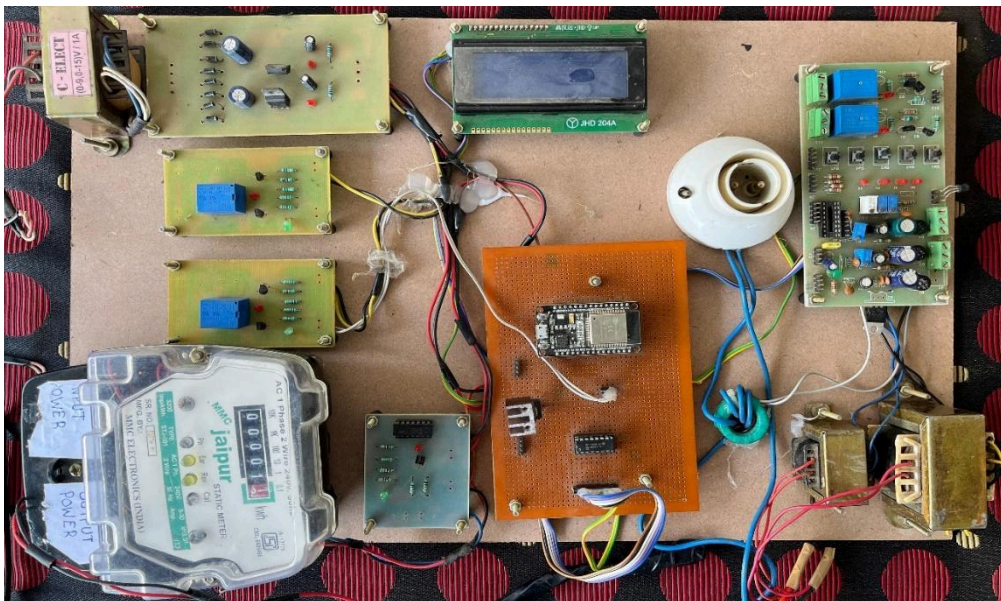
**Abstract: -** in this project we are using grid based meter with digital interface which can monitored on ESP32 based IOT system. Here the power, volt, current are monitored and the billing amount number of units by user

## COMPONENTS:-

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- LCD DISPLAY
- ESP32
- RELAYX2
- LOAD 60W
- DIGITEL METER
- PULSE INTERFACE CIRCUIT
- CT INTERFACE CIRCUIT
- PT INTERFACE CIRCUIT
- MCP 3008
- Advantages:** -
  - Useful for billing control
- Disadvantages:** -
  - Needs to be calculated as per billing sales
- Application:** -
  - Residence, bazars, apartment, theatre, industry etc.



## 10. Solar hybrid synchronous BMS charger using thing speak server

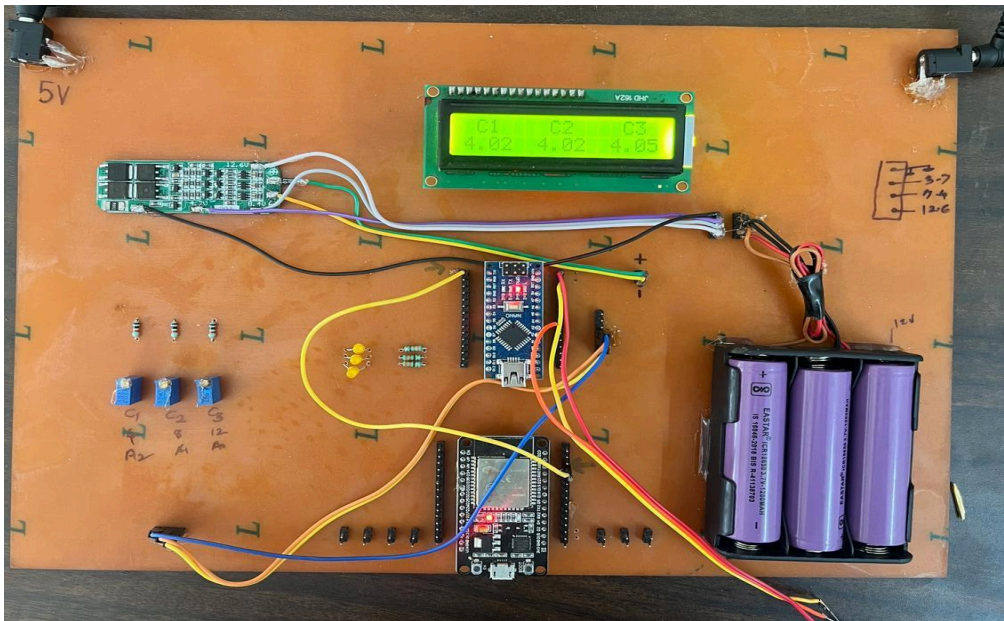
**Abstract:** - in this project the charging with balancing technique using li-ion BMS module and charging from both solar and grid. Both using synchronization to change with balancing technique the loads are connected to battery pack the all data is pushed to cloud server on IOT (ESP32)

- Components**

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- Arduino nano
- Battery pack 3.7 X 3
- Solar panel
- Relay
- BMS MODULE 3S/20A
- Esp32
- Lm35 temp
- **Advantages:**
- Useful in power failure
- **Disadvantages: -**
- Need bigger panel
- **Application: -**
- EV battery pack



## 11, IOT BASED INTELLIGENT WATER LEVEL CONTROLLER

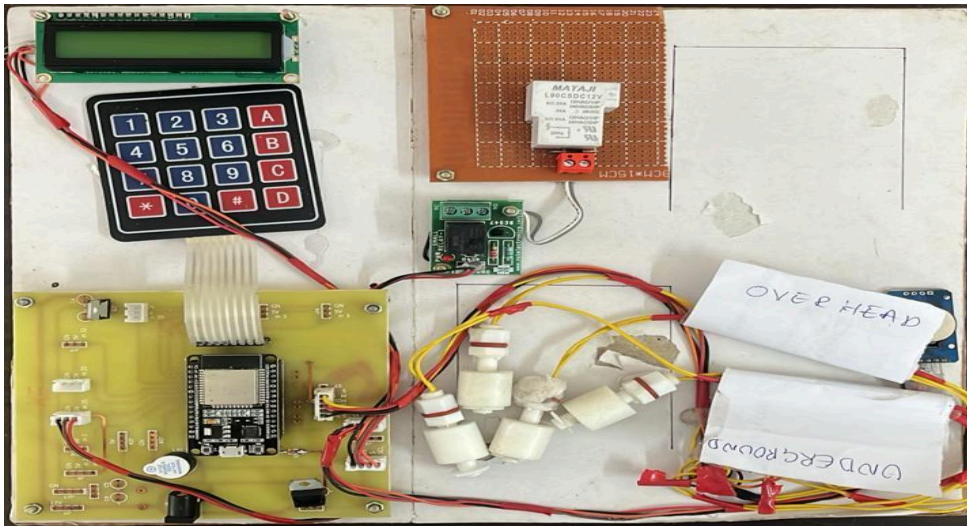
**Abstract:-** in this project we are using float sensor to monitor upper and underground tank level with using ESP32 controller in IOT mode with help the level set by user motor will automatically on/off without any human interface

- **Components:-**
- Esp32
- LCD I2c

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- Keyboard
- Ds1307
- Relay X2
- Float Sensor X4
- Power supply 12v
- Advantages:**
  - Automatic
- Disadvantages: -**
  - Need Wiring
- Application: -**
  - Water Level, Apt, Offices All Sector



## 12. IOT BASED SOILLESS FARMING TECHNIQUE IN HYDROPONICS

**Abstract:-** in this project we are using advance level farming using soilless plants that are grow in special environment using a advance structure using IOT based hydroponics very useful to grow plants where space is very less have we are using the esp32 with multiple sensor like temp humidity Level and PH of water using pump and mechanical model

- Components:-**
  - Esp32

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- LCD I2c
- Relay X2
- Water level sensor
- DHT11
- Water pump
- Hydroponics mechanical structure
- Buzzer
- Power supply 5v
- Advantages:**
  - Useful in apartment, bungalow
- Disadvantages: -**
  - Need some chemical to grow plant
- Application: -**
  - Used in farming



### 13. EV & PHASE BLDC HUB MOTOR POWER GENERATION TO CHARGE EV BATTERY PACK (60 W)

**Abstract:-** BLDC hub motor for power generation here we are using EV hub motor which is 3 phase and after doing some modification in the winding we are able to use a generation in the motor to generate ac signal to further charge EV battery pack, 60v, useful for nonconventional method

- Components:-**

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## **Advantages:**

- Useful for when EV bike are in running mode

## **Disadvantages: -**

- Need control circuit

## **Application: -**

- Useful in EV charger

## 14. IOT BASED VERTICAL CAR PARKING USING RFID

**Abstract:-** here we are using vertical mechanical structure in order to save space and we can achieve many cars park in minimum space and the mechanical structure is 4 slots with RFID card for security for each owner after validation the gate slot open close automatically using embedded IOT interface circuit

## **Components:-**

- MECHANICAL STRUCTURE

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- ESP32
- LCD I2C
- RFID CARD
- SERVO MOTOR
- IR MODULE X3
- SWITCH
- BUZZER
- MECH MOTOR (CHAIN)
- Advantages:**
  - In less space
- Disadvantages: -**
  - Needs separate mechanical structure
- Application: -**
  - Useful in crowded area



### 15. IOT BASED HOME AUTOMATION USING REMOTE XY APP

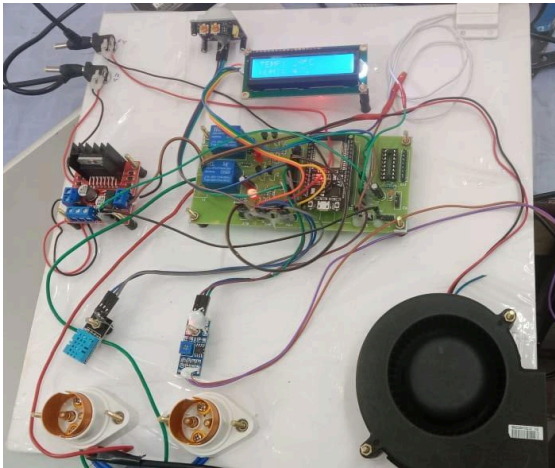
**Abstract:-** here we are monitoring complete home automation parameter with power saving technique used in residence bungalow here we are using ESP32 with IOT, with multiple sensor with security and auto light on/off, intruder detection, alarm, message on cloud remote android app

- Components:-**
  - ESP 32

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- LCD I2C
- RELAY X2
- PIR SENSOR
- LM35 TEMP
- LDR MODULE
- DOOR SENSOR
- BLDC FAN
- CLOUD REMOTE XY
- Advantages:**
  - home/ bungalow power save
- Disadvantages: -**
  - needs multiple sensor
- Application: -**
  - used in bungalow with more space



### 16. ARDUINO NANO BASED EV VEHICLE WITH BMS TROLLEY

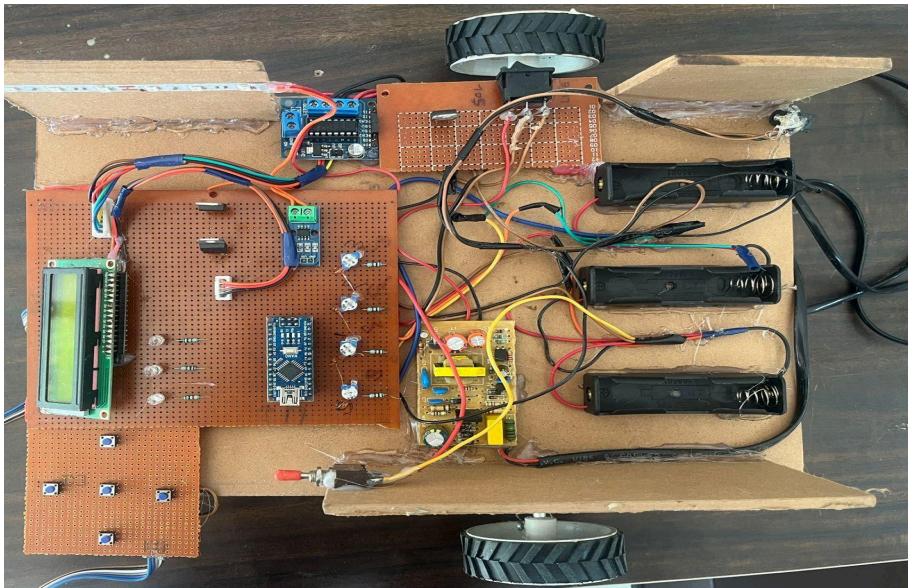
**Abstract:** - here we are using trolley as EV with advance BMS charger with motor control balance charging technique with motor control circuit and key pad used to rotate trolley in proper direction the trolley is full battery operated

- Components:-**
  - Arduino nano
  - LCD I2C

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- Motor driver
- Motor 2
- SMPS power supply
- 3.7x3
- BMS module
- Advantages:**
  - Useful for EV battery operated
- Disadvantages:** -
  - Need wireless
- Application:** -
  - EV vehicles and hybrid cars



## 17. IOT BASED MEDICAL PARAMETER

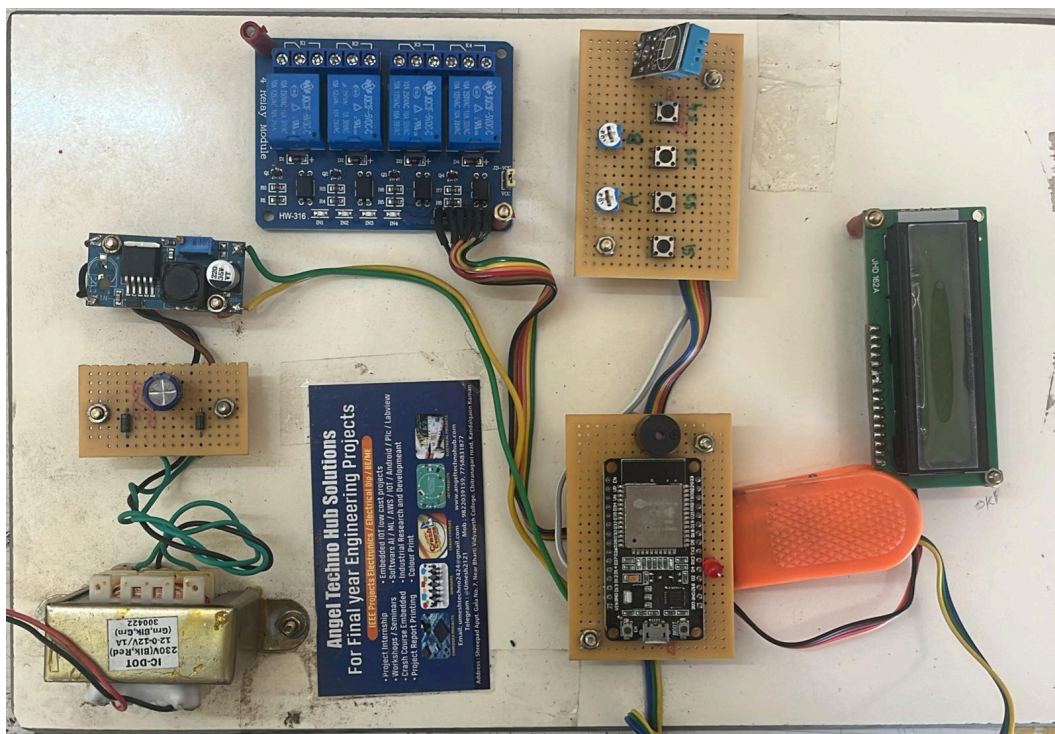
**Abstract:** - we are using IOT based remote medical parameter monitoring system using blynk app and the data is transferred to cloud. Using ESP32

- Components:-**
  - HEART RATE
  - BUCK BOOST
  - TRANSFORMER
  - POWER SUPPLY

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- TEMPERATURE
- POT
- ESP32
- LCD I2C
- Advantages:**
  - Useful for old age patient
- Disadvantages: -**
  - Need sensor more accuracy
- Application: -**
  - For remote patient monitoring system



## 18. IOT BASED WIRELESS CAR CHARGING WITH AUTO TIMER AND TWO SLOT PARKING

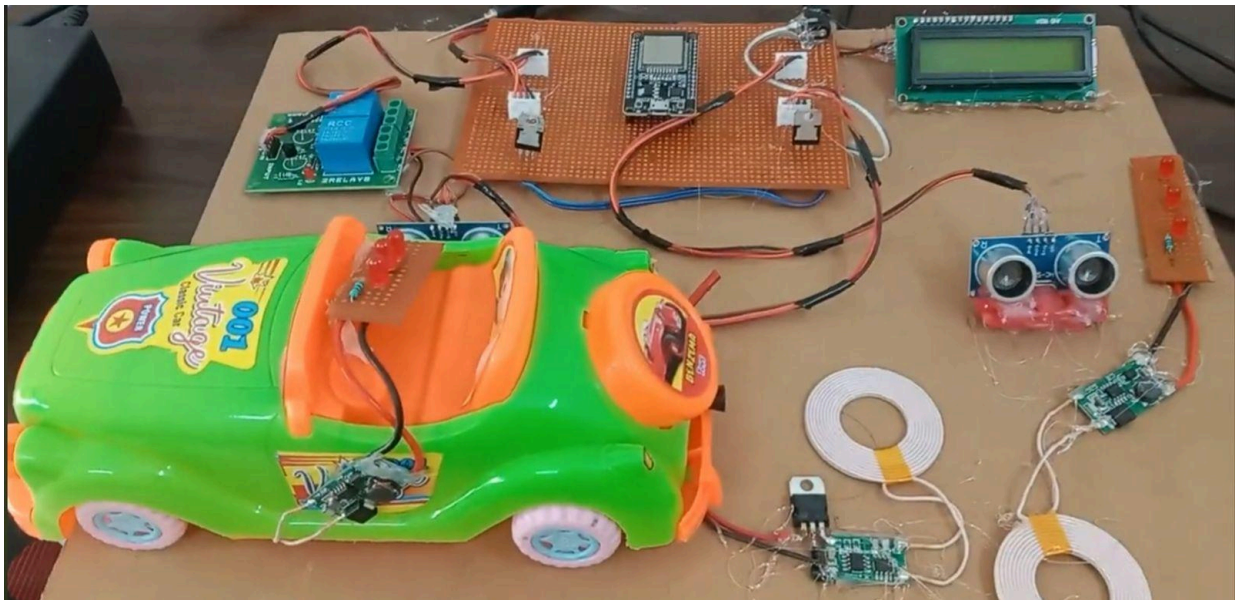
**Abstract:-** the project is very high end technology using wireless charger module used for charging cars that to wireless mode. Here we are using can presence detection with slot full or not the car charging timing is also calculated automatically without any human

- Components:-**
  - ESP 32

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- Relayx2
- LCD I2C
- Ultrasonic sensor
- EV wireless charger module x2
- IR sensor
- Car module
- Advantages:**
- EV cars
- Disadvantages: -**
- Need sensors
- Application: -**
- EV charger station



### 19. IOT BASED COLOUR DETECTION AUTO MECHANISM FOR POWER LOOMS

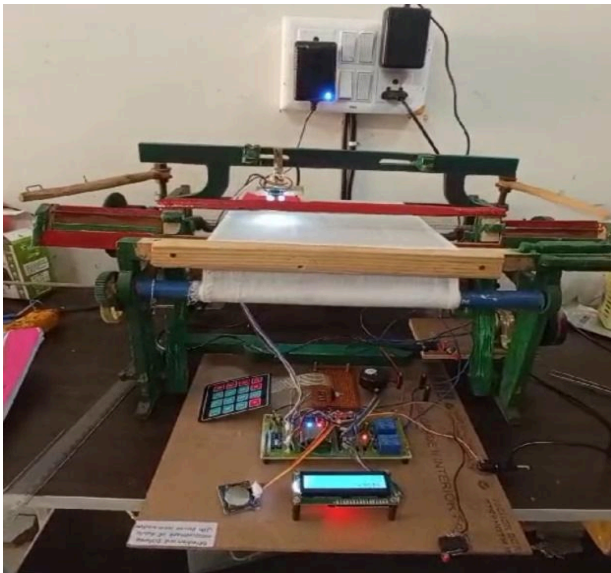
**Abstract:-** now a days the power looms for clothes applications, machine available has many limitation here we are using IOT control with small module of loom with colour sensing technique with stop at end of roll and count length of achieved clothes distance on IOT

- Components:-**
- LCD I2C
- RELAY X2

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- ESP32
- TOUCH KEYPAD
- DS1307
- COLUR SENSOR
- BUZZER
- MECHANICAL SETUP
- POWER SUPPLY 5V
- Advantages:**
  - In power looms
- Disadvantages: -**
  - Need precise sensor
- Application: -**
  - In power loom automation



### 20. VOICE OPERATED BLUETOOTH CONTROL ROBOT

**Abstract: -** In This Project We Are Using Arduino Uno with Bluetooth Interface and Robot Trolley Using Motor Control with Remote Direction Controls

- Components:-**
  - Ultrasonic Sensor
  - 3.7x2 Batteries

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- Servo Motor
- Arduino Uno Shield
- L298 Motor Driver
- 4x Motor
- 4x Wheels
- Bluetooth Control
- Advantages:**
  - Useful In For Small Task
- Disadvantages: -**
  - Range Limits
- Application: -**
  - Use For Obstacle Auto Path Finder Robot

