Sandip RoboTech & Automation

1) **DTMF Controlled Robot**: This simple DTMF based Cellphone controlled robotic vehicle circuit is designed without using microcontroller and is used in industries and surveillance systems.

2) **Bluetooth Controlled Home Appliances**: This circuit explains you how to control the electrical appliances using an Android device. Here, Bluetooth module is interfaced to ATmega 328 microcontroller. This Bluetooth receives the commands from the Android application device using wireless communication.

3) **Wireless Power Transfer**:
A simple wireless power transfer device is developed in this project without any microcontroller. Nikola Tesla realized the concept of wireless power transfer. An efficient wireless power transfer system can eliminate the concept of current carrying cables. A small DC fan is operated wirelessly from a distance of 3cm in this project to demonstrate the working. Potential applications of the project are wireless charging of mobile phones, laptops, iPods, etc.

4) **Metal Detecting Robot**: Here, we use a metal detection robot which works on RF technology. Land mines buried under the ground causes threat to the lives and affect the economy of the nation. Detection and removing of these mines manually is a dangerous task

5) **Street Light that Glows on Detecting Vehicle Movement**:
Street Lights are very important during night time. They remain ON all night even if there is no vehicle movement and hence a lot of energy is wasted. A solution for this problem is presented in this project where the system detects the movement of the vehicles to automatically turn ON or OFF the street lights. IR sensors are used for detecting the movement of vehicles and the 8051 microcontroller controls the High Intensity Discharge (HID) Lamps accordingly.

6) **Password based Circuit Breaker**:This password based circuit breaker project is built using Atmega328p controller and is used to switch off the power supply to the line by entering a password.

7) **Auto Metro Train to Shuttle between Stations**:
A microcontroller based autonomous metro train system is designed in this project. It is a fully automated system where the train shuttles between stations with the help of several IR sensors and the door automatically opens and closes as per the preset timers. Additionally, a passenger counting mechanism is also present to monitor the occupancy level. The important components of the project are 8051 Microcontroller, IR Sensors, 7 – Segment Display and Motor Driver IC.

8) **Auto Intensity Control of Street Lights:** This is a simple circuit that automatically controls the intensity of street lights which is designed using microcontroller and LEDs.

9) **Automatic Irrigation System on Sensing Soil Moisture Content**:Agriculture is the backbone of a country's economy and proper irrigation method is important in agriculture. In this project, an automatic irrigation system is designed that switches the pump motor ON or OFF by sensing the moisture of the soil. A soil moisture sensor continuously monitors the moisture content of the soil and this information is sent to an Atmega328p Microcontroller. According to the data from the sensor, the microcontroller operates the pump motor. Additionally, an LCD is used to display the moisture status of the soil and state of motor.

10) **Line Following Robotic Circuit using Microcontroller:**This line follower robot is a basic robot that follows a specific path indicated by a line having some particular width.

11) Contactless Digital Tachometer using Microcontroller: Here we designed a simple non contact tachometer using microcontroller which can measure speed with an accuracy of 1 rev/sec

12) **Energy Meter Billing with Load Control over GSM with User Programmable Number Features**: A Microcontroller and GSM Module based Energy Meter Reading System is designed here. Using this project, the user as well as the electricity department gets the reading through SMS. Additionally, the user can operate loads through SMS. This project eliminates the traditional manual, time consuming and expensive process of energy meter billing. The system consists of an 8051 microcontroller, a GSM Modem and an LCD display.

13) **Automatic Railway Gate Controller with High Speed Alerting System**: The main aim of this project is to operate and control the unmanned railway gate in the proper manner in order to avoid the accidents in the unmanned railway crossing.

14) Solar Highway Lighting System with Auto Turn Off in Daytime:
In this project, an LED based street light system is designed that is powered using solar energy. The street light system also has an auto intensity control mechanism for automatically adjusting the light intensity. A light dependent resistor is used to sense the surrounding lighting conditions. The 8051 microcontroller reads this information and adjusts the intensity of LEDs through PWM technique. It also has a feature of automatically tuning off the street lights during daytime.

15) Water Level Controller using Microcontroller: Here we are designing the circuit which is used to detect and control the water level automatically in overhead tank using 8051 microcontroller. It is used in industries to control the liquid level automatically.

16) **RFID based Paid Car Parking**:An automatic car parking payment system is designed in this project with multiple functionalities. The project is based on RFID cards, where the 8051 based microcontroller and IR sensors monitor the entry and exit of the vehicles. The users are allowed in the parking space only after swiping the RFID card. During exit, the RFID card must be swiped once again and the parking fare automatically gets deducted from the card.

17) Energy Meter Reading over Internet:An Internet of Things (IOT) based energy meter reading system is designed here. It is an 8051 microcontroller based project that measures the reading of the energy meter and calculates the units consumed and the corresponding cost. An LDR sensor is used to read the blinking LED in the meter. A GSM Modem is interface with the microcontroller in order to send the readings and cost to a webpage over the internet.

18) **Sun Tracking Solar Panel**: This article describes about circuit that rotates solar panel. This Sun tracking solar panel consists of two LDRs, solar panel, stepper motor and ATMEGA8 Microcontroller.

19) **Bidirectional Visitor Counter using ATmega328:** This Bidrectional Visitor Counter Circuit is helpful to count the number of persons entering or leaving a room and to display it on a screen.

20) **Biometric Attendance System**: The main aim of this circuit is to take the attendance using biometric method and display when requested. This can be used in educational institutions, industries, etc.

21) **Password Based Door Lock System**: This system demonstrates a password based door lock system wherein once the correct code or password is entered, the door is opened and the concerned person is allowed access to the secured area. After some time, the door would be closed. Read this post completely to get more information.

22) Temperature Controlled DC Motor using Microcontroller: The main principle of the circuit is to switch on the fan connected to DC motor when the temperature is greater than a threshold value.This can be used in home applications and in cpu to reduce heat.

23) **Automatic Star Delta Starter using Relays and Adjustable Electronic Timer for Induction Motor**:Starters for induction motors are very important as they provide safety for them while starting. Star Delta type motor starters are very common in industrial motors as they reduce the initial current of the motor. In this project, an automatic star delta type starter for induction motor is designed using timer and relays. The relays set the connection from star to delta after a time delay.

24) **Bidirectional Rotation of an Induction Motor with a Remote Control Device:**A system, which rotates an induction motor in both the directions with the help of a remote is designed here. With the help of this project, any induction motor like a ceiling fan can be made to rotate in either forward or reverse direction. The switching between the forward and reverse direction of rotation can be made with a TV remote. The major components of this project are microcontroller, TV Remote, Relays and Relay Driver.

25) **7 Channel IR Remote Control System using Microcontroller**: This article is aimed to design and demonstrate a simple 7 channel remote control system to drive five loads. This circuit works on the principle of IR communication.

26) **Celsius Scale Thermometer using AVR Microcontroller**: This Celsius Scale Thermometer circuit is designed using atmega328 and lm35. This circuit works on analog to digital conversion principle. It can be used at homes, mobile places like cars to keep a track of the temperature.

27) **Automatic Washroom Light Switch**: This is a simple but very useful circuit in our real life which helps to automatically turn On the lights when a person enters the washroom and it automatically turns Off the lights when he leaves it.

28) **TV Remote Operated Domestic Appliances Control:** Wireless and Remote control of different appliances is always an interesting topic. In this project, a TV Remote is used to control different home appliances. The system is designed using AVR family of microcontroller and an IR Receiver. Based on the button clicked on the TV Remote, different appliances either switch on or off.

29) **Simple 100W Inverter Circuit**: This is a small Inverter circuit which converts the direct current (DC) to alternating current (AC).

30) **Fire Alarm with Siren Sound:** This circuit alerts us when there is a fire accident at home by ringing a siren sound instead of a buzzer.

31) **RFID based Attendance System**:In this project, an RFID based attendance system is designed that is used to record attendance of students or employees with the help of RFID Cards. All the authorized persons, who get their own RFID cards, must swipe it before the RFID reader and the system automatically registers the attendance. The developed system helps is saving time, eliminates errors or proxies. It is developed using 8051 microcontroller, RFID Reader, RFID Cards and an LCD.

32) **Electronic Eye Controlled Security System**:A non – microcontroller based security system project is designed here. In this project, the security system is implemented using photo sensing arrangement with the help of Light Dependent Resistors (LDR). A ripple carry counter is used to sense the intensity of light and drives a buzzer and relay. This simple security system is suitable for lockers, cash boxes, banks, etc.

33) **Using TV Remote as a Cordless Mouse for the Computer**:In this project, a TV Remote is configured to work as cordless mouse for computer. A mouse in a computer, being a GUI based device, eases the input operation for the user. But corded mouse is the most common one. The system presented in this project allows a wireless mouse operation using just a TV remote that can used during presentations, for Android TV box etc.

34) **Solar Energy Measurement System**:The energy generated from Solar will be exponentially increased in the future. In this project, different parameters involved in solar energy generation like intensity of light, voltage of the panels, current flow and also the temperature of the panels are continuously monitored. The project is based on PIC16F series microcontroller which is interfaced with LDR, Voltage sensor, Current sensor and temperature sensor.

35) **Voice Controlled Home Appliances**:Remote control of different home appliances is always an interesting concept. In this project, this is achieved with the help of voice commands. An Android based phone or tablet and a Bluetooth device are used in combination with 8051 microcontroller. The voice commands are decoded by the Android App and the data is transmitted via Bluetooth. The loads are connected through TRIACS and Opto Isolaters.

36) **Rain Alarm Circuit**: Rain water detector will detect the rain and make an alert; rain water detector is used in the irrigation field, home automation, communication, automobiles etc. Here is the simple and reliable circuit of rain water detector which can be constructed at low cost.

37) **IOT based Home Automation Over the Cloud**:A simple home automation system using Internet of Things (IoT) concept is designed in this project. A Programmable Wi-Fi module is the main component of the project and all the necessary code is written in it eliminating the use of microcontroller. a web based application is used to send the commands over the internet. TRIACs and Opto Isolators are used to control the loads

38) **Motion Detector Circuit**: The motion detector is not only used as intruder alarm but also used in many applications like home automation system, energy efficiency system, etc. The motion detector will detect the motion of the people or objects and give the appropriate output according to the circuit.

39) **PIR Sensor Based Security Alarm**: This article explains about PIR based security system in which PIR sensor is used instead of transmitter or receiver. This saves the power consumption and is low cost. This circuit can be used in the museums to protect the valuable things.

40) **RF based Home Automation System**: Here we have used RF434 MHz modules to make wireless remote. Using this remote, we can control the appliances within the range of 100 meters. It is used for remote control applications like burglar alarm, car door alarm, calling bell, security systems, etc.

41) **Digital Voltmeter using AVR Microcontroller**: This is a simple digital voltmeter circuit designed using 8051 microcontroller. This circuit measures the input voltage from 0V to 5V. Here, the input voltage should be DC voltage to get the accurate output on LCD.

42) **Ultrasonic Rangefinder using AVR:** This circuit explains you how to measure the distance using 8051 microcontroller. This ultrasonic range finder system measures the distance up to 2.5 meters at accuracy of 1 cm.

43) **Wireless Mobile Battery Charger Circuit**: This circuit mainly works on the principle of mutual inductance. This circuit may be used as wireless power transfer circuit, wireless mobile charger circuit, wireless battery charger circuit, etc.

44) **Interfacing GPS with Microcontroller**: In this interfacing of GPS with AVR circuit, GPS module calculates the position by reading the signals that are transmitted by satellites

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46) **IoT Home Security Model**: This home security system continuously monitors the activities in the home and if there is any harmful activity it is intimated to the owner .The data is stored in the cloud.

47) **Low Cost Home Automation Using Offline Speech Recognition:**This home automation project is added with Sound based on acoustics. This project is designed for physically challenged people.

48) **Temperature Controlled DC Fan using Microcontroller**: The main principle of the circuit is to switch on the fan connected to DC motor when the temperature is greater than a threshold value.This can be used in home applications and in cpu to reduce heat.

49) **PWM based DC Motor Speed Control using Microcontroller**: Here is a simple DC Motor speed control circuit designed using AVR Microcontroller. Here we use a technique called PWM (pulse width modulation) to control the speed of DC motor.

50) **Automatic Power Factor Control by using microcontroller:**

51) **GSM based Prepaid Energy meter :**

52) **6 Digit Clock With Alarm:**

53) **Weather Station:**

54) **IR remote controlled Home appliances:**

55) **Humidity And Temperature merter**

56) **IR Remote control Robot**

57) **GPS Based clock Aand Navigation**

58) Blind Stick

59) Pin Based Door lock

60) Home Security System using GSM

Contact- 7532858389, 9935796633

61) Visitor Counter

62) Wireless notice board

63) Touch Screen base Home automation

64) Dual Axis Solar Tracker.

65) Home Automation by Android through BlueTooth

66) Home Automation by Android through WiFi.

67) *Project on Raspberry pi.*

68) **MP3 Player by Arduino and Resistive touch Display:**

69) **Web Control home Automation:**

70) **Wireless Cellphone Charger:**