

EC301 Minor Project (EXP. 12)

1. **Automatic Street Light:** Needs no manual operation for switching ON and OFF.
2. **Electronic Letter Box :** When letter is kept inside this letter box then a LED indicates its presence.
3. **Rain Alarm :** A tone is produced when wire is in contact with water. This circuit can also work for tank overflow indicator.
4. **Heat Sensor :** Simple, but sensitive Circuit for indication of temperature.
5. **Temperature Sensor :** For Detection of Accurate Degree Centigrade by which you can make many interesting projects.
6. **Temperature Display using LCD:** Digital Display Current Temperature using Microprocessor.
7. **Automatic Fan Controller :** Fan automatically starts rotating when temperature is hot. Speed is also controlled according to temperature. Easy Mini Projects.
8. **Electronic Eye :** It can be used as an automatic guest indicator at the door, if fitted on the bottom of the door entrance. Once it is installed at the door there is no need to install a call bell. It can also be used at homes or in banks as a burglar alarm.
9. **Burglar Alarm :** LDR is kept at such a place that when thief enters our house then a shadow will fall on the LDR.
10. **Touch Switch :** A tone is generated when any one touches sensor
11. **Fire Alarm :** Simple Circuit for detection of fire.
12. **Traffic Light :** Timer Based Electronics Project for Indication of different Colours as signal to control Traffic.
13. **MP3 Player with FM Radio:** Play MP3 from Memory Card, Pen Drive, etc and also hear from FM Radio telecast.
14. **Dynamo :** Learn, how Motion magnetism and a conductor creates current.
15. **Solar Cell :** Produce Electricity with sunlight.
16. **Rectifier Circuits :** Half Wave Rectifier, Full Wave Rectifier
17. **Charger :** Simple and Easy charger circuit for Ni-Cad batteries.
18. **Transformer :** Simple Project to learn, how number of turns effects e.m.f
19. **Transistor as a Switch :** Determine the Characteristic of Transistor conductance.
20. **Voltage Regulator and :** To control DC Voltage
21. **Musical Bell :** This Project uses UM66 for Musical notes generation and is amplified with a transistor and gives melody sound with a speaker.
22. **Four Tone Siren :** Produces four different sound that is Police siren, Fire engine sound, Ambulance and Machine gun effect with the help of single IC.
23. **FM Transmitter :** Simple FM Transmitter Circuit for receiving sound in FM radio. Transmission range is about 30 meters.
24. **Telescope :** A telescope is an instrument that makes a faraway object look closer.
25. **Using Fuse Tube Light :** Re use your thrown tube light using simple and easy circuit.
26. **Battery Charging Circuit:** This is one of the most basic and best mini projects in electronics. A diode is used to rectify the AC mains voltage to charge the battery. The circuit consists of basic transistor switching methods and the components are cheap and are available in all electronics shops.
27. **Air Flow Detector Circuit :** This simple mini project is used to design an indicator to show the rate of air flow in a given space. The air flow is sensed with the help of

an incandescent bulb filament. The variations due to the change of resistance in the bulb due to the air flow are given to the input of an amplifier.

- 28. Water Level Alarm Circuit:** This circuit is used to produce an alarm output (bell or light), when the level of water rises above a certain level.
- 29. Low Cost Fire Alarm Circuit:** This circuit can be used for detecting a fire and producing an alarm, thus alerting the people in the building where it is installed. A transistor sensor called BC177 is used to sense the heat produced due to the fire. A preset level can be kept for the transistor. As soon as the temperature rises above the set preset level, the leakage current of the transistor rises, thus driving the other transistors in the circuit. A **relay** is also used to switch the bell load as its output. The components needed for the circuit can be obtained easily and the circuit is easy to design.
- 30. High and Low Voltage Cut-off With Delay and Alarm:** This circuit can not only be presented as your mini project, but can also be applied on your home electrical equipments to protect them from over voltage fluctuations.
- 31. Light Activated Switch Circuit:** This circuit uses an LM 311 comparator IC and a light dependent resistor as its sensor. The output of the LDR is given to the inverting input of the comparator. The resistance remains high when there is no light and the resistance drops as soon as light falls on it. This lessens the voltage at the inverting input and thus the comparator produces a high output which turns a transistor and thus the relay on. A much more detailed working can be obtained from the original post.
- 32. Mobile Incoming Call Indicator:** This circuit can be used to escape from the nuisance of mobile phone rings when you are at home. This circuit will give a visual indication if placed near a mobile phone even if the ringer is deactivated.
- 33. Audio preamplifier:** Design and implementation based on audio amplifier from 20Hz to 20KHz.
- 34. Universal Power supply:** It is use for muli purpose supply distribution to equipments.
- 35. USB Mobile Charger Circuit:** This circuit is useful in charging the mobiles through USB outlet present in our laptops and PCs. For the charging of your mobile phone, this circuit provides you a regulated voltage of 4.7 volts.
- 36. UP/DOWN Fading LED Lights:** This is a simple up/down fading LED lights circuit which can be used in shopping malls, home and security applications.
- 37. Unbiased Digital Dice with LEDs:** This is a circuit diagram of digital dice which is nearly unbiased. By using this circuit, there is no chance to cheat as the circuit operates at such a high speed that the circuit is almost imperceptible to the human eye.
- 38. Transistor Intercom Circuit:** This transistor intercom circuit is a simple two way intercom circuit which is used for the dual purpose of sending as well as receiving signals.
- 39. Touch ON and OFF Switch Circuit:** This Touch ON/OFF Switch circuit is more useful in such a way that we can automatically ON or OFF any switch by touching a device without moving from our place.

- 40.Super Sensitive Intruder Alarm:** This circuit is designed to alert the user when an intruder enters into the home. If there is any obstacle in front of IR sensor, it generates an interrupt signal. This interrupt signal is given to the speaker to alert the user.
- 41.SR Flip Flop with NAND and NOR Gates:** SR Flip Flop, also known as SR latch is the most vital as well as broadly used Flip Flop. Get an idea about design of SR Flip Flop with NAND and NOR Gates.
- 42.Simple LED Blinking Lights Circuit:** Here is a best example for simple LED blinking lights i.e. LED Flasher which blinks the LEDs in regular time period. This circuit can be used for decoration purpose or can be used for a signalling purpose and many more.
- 43.Audio Tone Control Circuit:** This article explains you how to design an audio tone control circuit with the gain of around 25. This design needs less number of components and it is cost effective.
- 44.Security Alarm Circuit:** This circuit helps you to guard your precious documents as well as jewellery from intruders or theft. All you need is to just place this circuit in front of the locker or below the mat so when any unknown person come and walk over the switch, the circuit will trigger and sound of alarm comes.
- 45.Reverse Parking Sensor Circuit:** If you are a new driver then it is very difficult to judge the distance while parking the car. Reverse parking sensor circuit solves this problem by indicating the distance with the help of three LEDs. We can easily arrange this system at the back side of the car.
- 46.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.
- 47.Panic Alarm:** This panic alarm circuit helps us to intimate others regarding our bad situation without any delay. It is more useful when an intruder entering our house or bad health status at which we are unable to intimate to the people around us.
- 48.One Transistor Electronic Code Lock System:** The main principle of this circuit is that the door lock opens only when the buttons are pressed in an order. The transistor and diode plays a main role in the circuit.
- 49.Multiplexer and Demultiplexer:** A multiplexer is a circuit that accepts many inputs but gives only one output where as a demultiplexer accepts only one input and gives many outputs. Get an idea about their circuit diagram and pin diagrams in this post.
- 50.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.

- 51.Mains Operated LED Light Circuit:** This is a simple circuit which is more useful to save our resources, energy and money by installing in your homes.
- 52.LED Running Lights Circuit:** This is a simple circuit consists of 9 LED lights in knight rider scanner mode. It will present an eye catching look as the LED initially travel in the one way and then travel reverse in the similar direction.
- 53. LED Lamp Dimmer Circuit:** In this circuit, at the starting LED glows slowly, then grown brighter and once again slowly it became dim. The basis of the whole circuit is an operational amplifier IC named LM358.
- 54.3X3X3 LED Cube:** This is a simple a simple LED cube circuit designed without using microcontroller. It is based on the principle of driving LEDs using the clock pulses.
- 55.LED Christmas Lights Circuit:** This is a simple circuit used to decorate your house by building christmas lights using LEDs. The lights will get ON at night and OFF in morning time.
- 56.Lead Acid Battery Charger Circuit:** Lead Battery is a rechargeable battery and is more useful in our real life as it will dissipate very little energy, it has very low energy to weight ratio, it can deliver high current, can work for long time with high efficiency and is very low cost.
- 57.Hot Water Geyser Controller Circuit:** This circuit is made to turn OFF geysers as soon as our water gets hot and are ready for bathing.
- 58.High and Low Voltage Cutoff with Delay and Alarm:** This high and low voltage cutoff with delay alarm circuit is an advanced automatic voltage stabilizer circuit and is used to protect our home appliances. It's cost is less as compared to voltage stabilizers.
- 59.Frequency Counter Circuit:** Here we design a simple frequency counter system using two timers and two counters. While one of the Timer IC is used to produce clock signals, the other is used to produce the time limited signal of one second.
- 60.Mosquito Repellent Circuit:** Here is the simple electronic mosquito repellent circuit which can produce ultrasound in the frequency range of 20-38 kHz, which can scare away mosquitoes.
- 61.Electronic Letter Box:** This is a simple circuit which helps in finding out any letter dropped in our box by stopping the LED lights attached in this circuit.
- 62.Curtain Opener/Closer Circuit:** This circuit will open and close the curtain of your home and office just by pushing a switch. So with the help of this unique circuit, we do not need to move from one place to open and close the curtain.
- 63.Continuity Tester with Melody:** This circuit works as a continuity tester device which tests the continuity of the wire at hand. It is an indispensable tool to check broken wires and undesired shorting of wires.

- 64. Clap Switch Circuit for Devices:** This is another simple but very useful circuit which helps to ON or OFF a device without moving from you place and also helps to control the speed of the electric devices like fan, etc.
- 65. Bipolar LED Driver Circuit:** This bipolar LED driver circuit is very useful at the places where flashing of light is required, as in beacon flashing. This circuit can be mainly used for indication purposes.
- 66. 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.
- 67. Automatic Plant Irrigation System:** This project circuit is more useful in watering plants automatically without any human interference. It is more useful when the owner is not present in the home for few days.
- 68. Automatic Door Bell With Object Detection:** This automatic doorbell with object detection circuit helps to sense the presence of a person or an object automatically and rings the doorbell.
- 69. 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.
- 70. Audio Equalizer Circuit:** The circuit is used to change the tune/melody into a different pitch level by devoid of loss in the tune. It is mainly useful to music lovers.