

ELECTRICAL , SWITCHING , AUTOMATION AND CONTROL APPLICATION

(projects under this list are not based on embedded application or programming, pl see separate list for microcontroller and PC system based projects under this topic)

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PROJECTS IN THIS LIST ARE NOT BASED ON EMBEDDED TECHNOLOGY.
PLEASE REFER A SEPERATE LIST (MICROCONTROLLER AND PC BSED LIST)
FOR THAT.

IGBT BASED INVERTER: 100 watts inverter can be made using IGBT driver circuit for fast and energy efficient switching.

AUTOMATIC EMERGENCY TUBE LIGHT: - An inbuilt circuit for 20W tube light to glow in emergency. Required mini 6V bike battery. (10-118) (09/01/100)

DIGITAL FAN REGULATOR: - This eight digit fan regulator display the speed at FND display and is more reliable than conventional rotary regulator. 16-103

ELECTRONIC THERMOSTAT/ TEMP-CONTROLLER: - This simple thermostat will stabilize temperatures to within a fraction of one degree Centigrade.

AUTOMATIC SIGNALLY AND CONTROL SYSTEM FOR TRAIN MODEL: - This helps for efficient movement of train without colliding using six LED indicator lights.

AUTOMATIC UNMANNED RAILWAY CROSSING CONTROL: It automatically close the railway gate when train is coming from one side and close it automatically when it passes through it.

ELECTRONIC MOTOR STARTER/ CONTROLLER: - An electronic starter to 'ON' and 'OFF' the connected motor of single phase through relay.

CLAP OPERATED CONTROL: - A very useful circuit that can control the speed of fan/cooler besides switching it 'ON' or 'OFF' with clap sound.

CLAP OPERATED FAN SPEED CONTROL: A fan speed can be controlled by the multiple claps. Single clap to switch on, next clap for 2nd speed, 3rd clap for third speed and fourth clap to switch off.

ELECTRONIC SWITCH STARTER: - It electronically operates the motor/electrical appliances that provide overload/over voltage protection to the gadget.

AUTOMATIC ROOM LIGHT CONTROLLER /ENERGY SAVER: It counts the number of persons entered in a hall and accordingly control the electrical device. Thus it is helpful for energy saving in room.

IR REMOTE MOTOR STEED CONTROL CUM LAMP DIMMER: The circuit will allow any conventional dimmer or regulator for fan or motor control can be remotely operated by this IR (Infrared control) circuit.

MULTICHANNEL WATER LEVEL MONITOR CUM CONTROLLER: - It control pump when overhead tank is filled and gives alarm indication. It also checks under ground water level to protect dry run for pump.

AUTO TEMPERATURE CONTROLLER FOR FAN: - The circuit control the speed of fan at two ranges which in turn controlled by room temperature.

DIGITAL PHASE SELECTOR AUTOMATIC: The four phases can be digitally controlled for a single phase load. The available phase- out of the three from direct source and one from the inverter source will connect from the load automatically if power trips at other.

REGULATED SUPPLY WITH BATTERY BACKUP: - This circuit is helpful for electronic gadgets, which draw small current but are operated on comparatively high voltage. (10-145)

DIGITAL POWER FACTOR CONTROLLER CUM RECTIFIER: The power factor variations will be sensed by the sensing coil assembly and the digital circuit will activate the relay driver unit to connect capacitors network to the direct phase line.

MEDIUM POWER MOSFET INVERTER FOR CAR: The fast and low power consumption semiconductors as fast going with new technology Specially in inverters.

TEMPERATURE CONTROLLED FAN – TRIAC TRIGGERED: The Fan speed will be automatically changed as per temperature i.e. if the temperature rises, the fan will move fast and fan will run in low speed on low temperature.

TEMPERATURE CONTROLLED VENTILATORS: The motorised ventilators in room will automatically be open when it sense high temperature.

AC POWER PLANT CONTROL USING TEMPERATURE SENSOR WITH RF LINK: It sense and read the temperature of the unit and an RF link connected to it will switch of the control system if required.

TRIPPING SEQUENCE RECORDING CUM INDICATOR: - The circuit Stores the tripping sequence in a system with upto eight units/blocks. It will check the sequence on seven segment displays in which mcb's tripped due to short circuit.

100-WATTS INVERTER: - The 100 watts electrical appliances can be connected to this inverter. The additional charger circuit can be attached. 4/09

OPTO - THERMO SWITCH: The dual mode can be set in both Light and Temperature controls i.e. light operated, dark operated, high temperature operated, and low temperature operated modes on single setup.

SWITCH MODE POWER SUPPLY: - This is an electronic equipment which requires power supplies producing low voltages at large currents. (9-11)

IGBT CONTROLLED DC MOTOR DRIVE: It controls the speed of DC motor by changing PWM using IGBT as power driver control.

MULTICHANNEL WATER LEVEL MONITOR CUM CONTROLLER: - It control pump when overhead tank is filled and gives alarm indication. It also checks under ground water level to protect dry run for pump. 15/127

AUTOMATIC SUCTION TANK MOTOR CONTROLLER: - A logic IC based circuit control the top and lower level of water tank. 13/159

SINGLE PHASE PREVENTER: The circuit will cut off automatically if the dual phase gadget will not getting two phases, thus to prevent the gadget.

SOLAR SUN TRACKER/SEEKER: The solar panel can be moved automatically with the direction of Sun to get maximum energy from it further it shows five electrical concepts in one: (a) Generation of electrical energy from solar cell (b) Control of panel through DC gear motor (c) Light activated control with timer (d) Low power Inverter as emergency light and (e) Alternate supply source to charge battery using mains.

POWER LINE - DEVICE CONTROLLER- Four or Eight channel device controller can be remotely controlled by mains 220V phase line. The farm house electric poles or industrial machines can be controlled by this. 24/104

POWER LINE –ELECTRIC METER READER/COUNTER: A dummy electric meter can be made to demonstrate this project showing meter counting using mains line communication.24/104

ALTERNATE ENERGY GENERATION –for electrical

WIND MILL: The Actual wind mill model that produce electrical energy from wind and charge the battery to run inverter directly.

SOLAR SUN SEEKER: - It actually track the sun as per its position and move the solar cell/water heating plates accordingly so as to get maximum power from sun light.

THERMAL POWER PLANT USING STEAM: Steam energy is alternatively used to generate electrical energy. A traditional arrangement commonly used by any thermal plant but still very useful to display as teaching aid.

HYDEL POWER DAM: A Device SETUP that generate electrical energy from running water. The model comprises a pump, a water reservoir, an alternator to gen. electrical energy.

ELECTRICAL ENERGY FROM AMUSEMENT PARK RIDES (SEA-SAW, SWING, SLIDE, ROLLER ETC.) : The different amusement rides can be designed to generate electrical energy while children are using actually the park.

ELECTRICAL ENERGY FROM SPEED BREAKER: This can be designed to generate electrical energy when vehicles cross the breaker and roll the roller based speed breakers connected with an alternator.

PADDLE CONTROLLED MOBILE CHARGER CUM EMERGENCY LIGHT: - It works as we do cycling for exercise. Besides charging Mobile battery, it burns the extra calories too. Further it can modified to churn any thing.

HYBRID CHIMNEY : The dual natural energy sources say Wind and Sun energy is used to generate electrical energy. A good alternate source of energy for areas like deserts or barren land, where sun light is available but low speed of wind flow is there.

SOLAR POWERED REFREGERATOR: Compressor less refrigerator to provide 12-15 degree temperature while cooling and is also used to heat if required with the same

Thermo-EMF peltier junction based system works on 12V battery to be charged with Solar Cells/ Panel.

ELECTRICAL ENERGY FROM COMPRESSED AIR- This 'AIR GENERATOR' generate electrical energy from the air stored in a storage chamber using suitable air compressor.

ELECTRICITY FROM D.J. DANCE FLOOR: An alternate source or energy can be generated by the modified dance floor using pressure sensor based electricity generators.

WIND BELT: Another alternate energy generation to charge battery by low power wind, say simple fan etc. A moving belt vibrate when wind strike it from any side. The magnets on both ends make the generation of electrical energy .