TECHNICAL PROJECT REPORT

TITLE OF INVENTION / PROJECT: MOTION LIGHT

TEAM MEMBERS / INVENTORS:

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Section – 1 (IPR Related)

BRIEF ABSTRACT :

- The main aim of the project is Automatic power saving system with motion sensor; this is to save the power. We want to save power automatically instead of doing it manually.
- To solve this problem a device called a **motion sensor or motion detector** is used together with a lighting fixture.
- →Addition of LDR and micro-controller ---- Making the project useful for street light as street light will turn on when there in no sunlight and if motion is detected.
  →Adding Alarm ---- Will work as Security Alarm

EXISTING STATE-OF-THE-ART AND DRAWBACKS IN EXISTING STATE-OF-THE-ART

S. No.	Existing state of art	Drawbacks in existing state of art
1	Motion detector with side-pivoting light fixture (US5649761A)	PIR sensor is insensitive to very slow motion of the objects
2	Motion sensing, lighting and alarming system (US5867099A)	Thieves may find it easy to fool PIR detection range as they have slotted detection zone and not continuous one like microwave sensor

NOVEL/ADDITIONAL MODIFICATIONS THAT YOU CAN PROPOSE TO IMPROVE UPON DRAWBACKS

- Can use microwave sensor or ultrasonic sensor instead of PIR sensor with some modification in circuit
- Can use microwave instead of PIR sensor with some modification in circuit

ADVANTAGES

- Microwave sensor has higher sensitivity and coverage range than PIR sensor. So that every motion is detected.
  or
  Ultrasonic sensor are more reliable than PIR sensor. And doesn't face any interference due to sunlight.
- Microwave sensor has continuous field of detection zone where as PIR sensor has slotted detection zone. Hence PIR sensor may miss out objects. Hence microwave sensors are better in security applications compare to PIR sensors.

Section – 2 (Real Project)

MATERIALS

PIR Sensor - 1

1K Resistor -1

IN 4007 Diode -1

IN 4148 Diode -1

12v Relay -1

100uF Capacitor -1

12v Adaptor -1

BC 547 Transistor -1

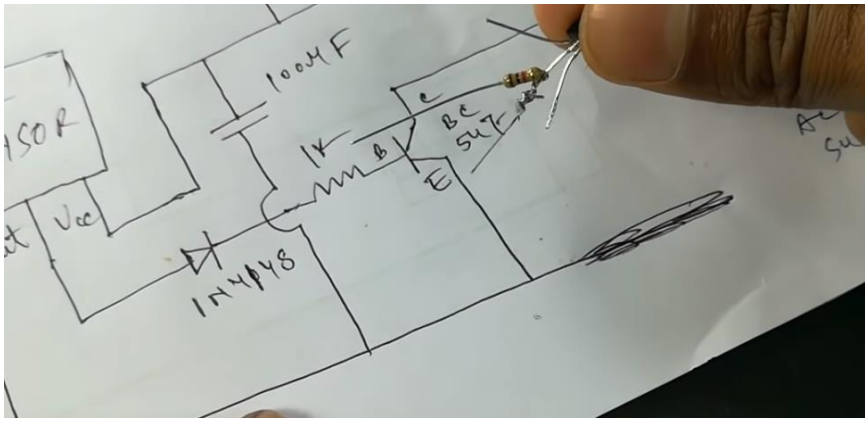
Soldering Iron

Glue

Jumper Wires/Connecting Wires

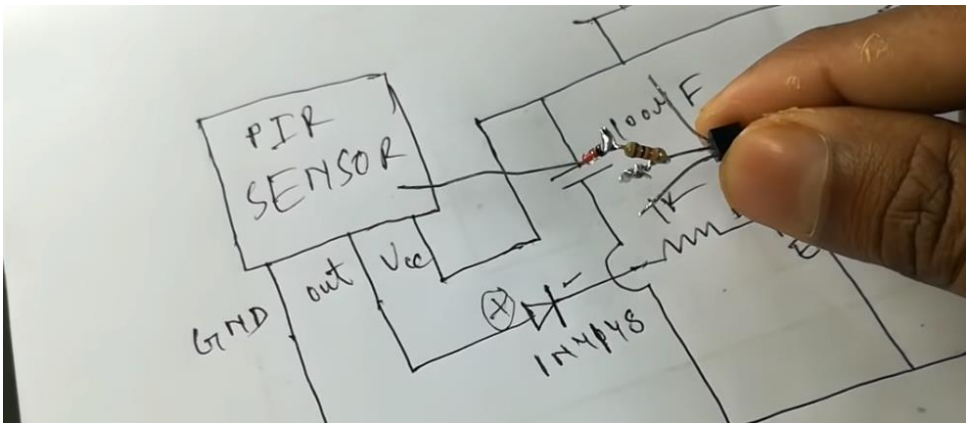
According to requirement

CIRCUIT DIAGRAM

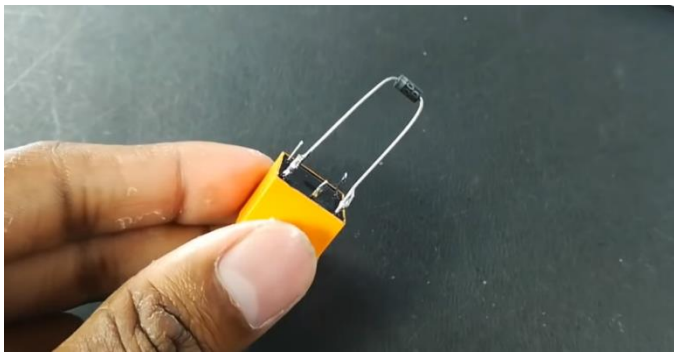


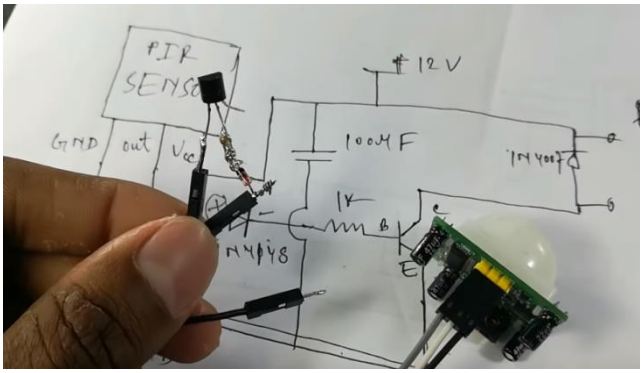
STEPS OF CIRCUIT COMPLETION

1. Solder resistor with transistor base.

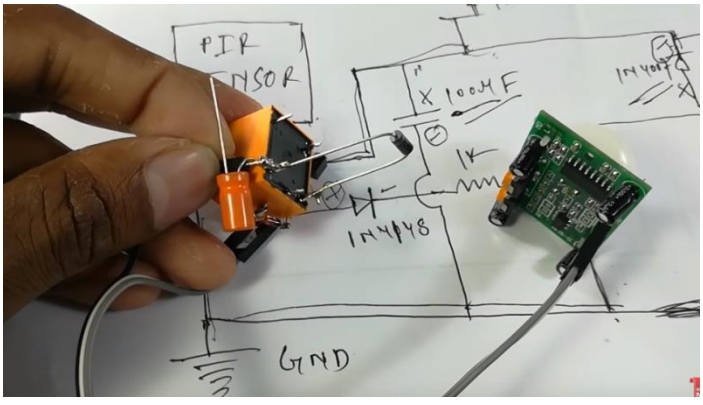


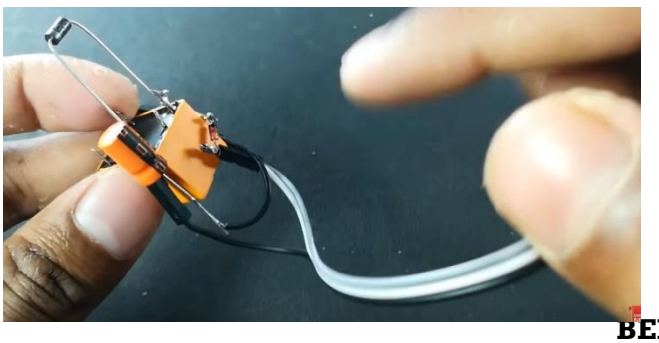
2. Make connection of IN 4148 diode –ve terminal with resistor
3. Solder GND of PIR sensor with transistor emitter and OUT of PIR sensor with the IN 4148 diode +ve terminal



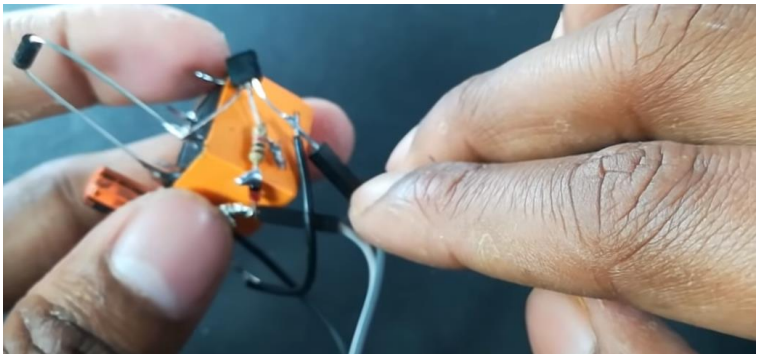


4. Make connection of IN 4007 diode with 12v relay
5. Make connection of Vcc of PIR sensor and 100uF capacitor +ve terminal and then solder it with –ve terminal of IN 4007 diode

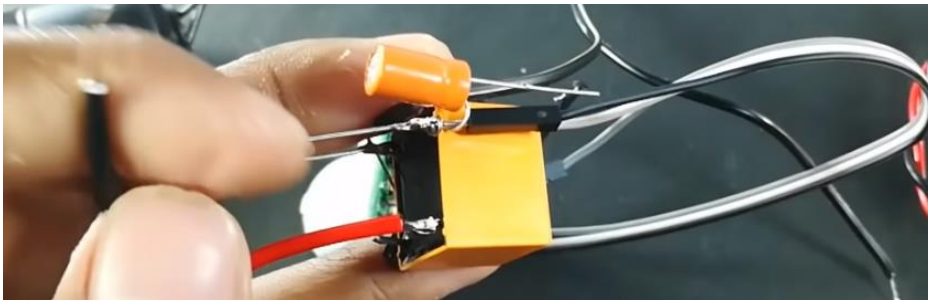




6. Solder –ve terminal of 100uF capacitor with GND of PIR sensor



7. Solder middle pin of relay with connecting wires.
8. Make connection of relay pin behind the connection of Vcc of PIR sensor with connection wire



9. Attach 12v adaptor with 100uF capacitor according to their polarity of terminal i.e +ve of battery with +ve of capacitor and –ve of battery with –ve of capacitor
10. Connect the one wire of load to wire connected to middle pin of 12v relay
11. Now one wire of load and wire from relay kept disconnected be used for giving power to the load.

PROGRAM CODE