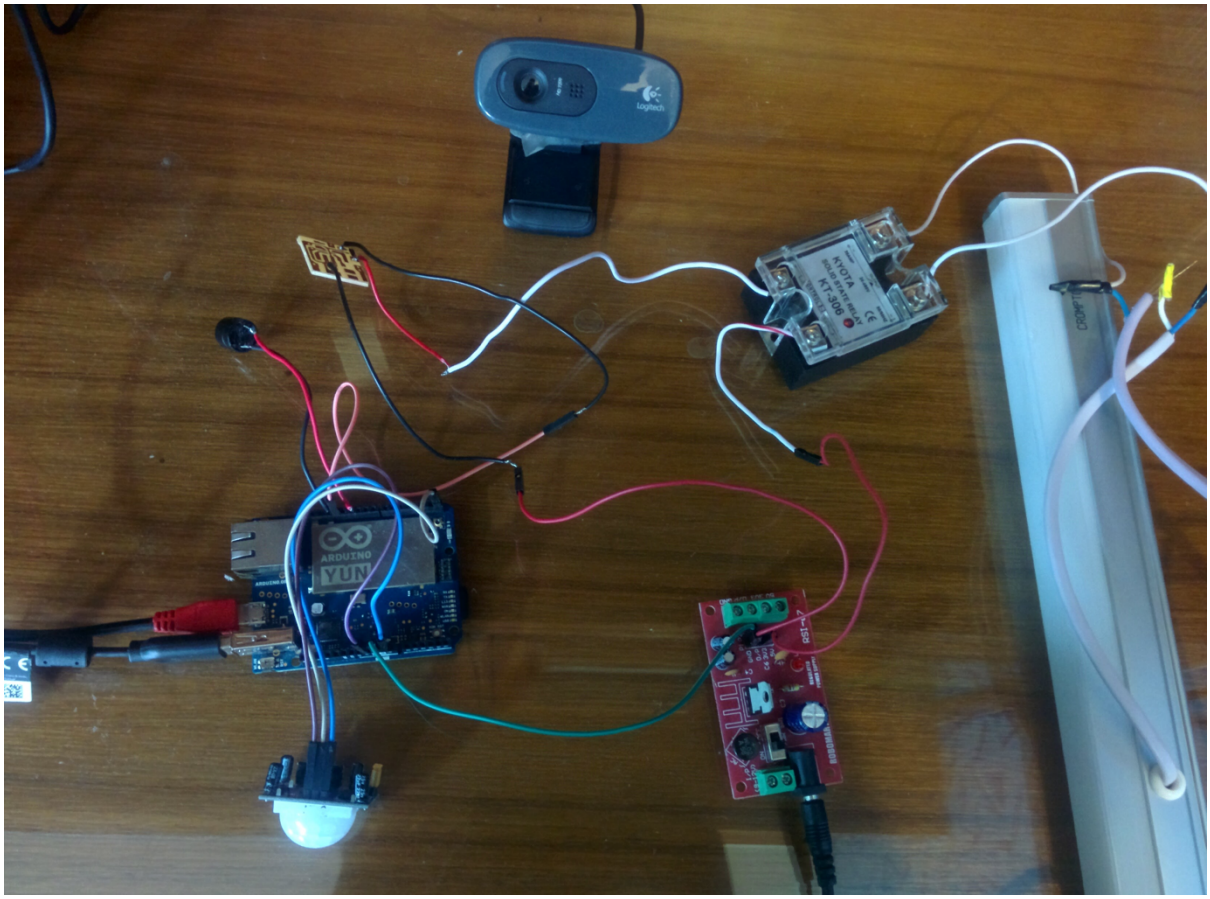
Department of Computer Science and Engineering

Tinkering Lab – 2nd Year

Intelligent Power Solution & Intrusion Detection



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IOT Project

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SUMMARY

The Internet of Things (IoT) is the network of physical objects (devices, vehicles, buildings and other items) embedded with electronics, software, sensors, and network connectivity that enables these objects to collect and exchange data.

An Arduino Yun board will be used as a programmable interface which will be used to send & receive data. We will be taking input from a passive infrared sensor and turning the alarm on while also taking the picture of the intruder & turning on the emergency light.

The same model can also be programmed used for intelligent power savings as we can turn a number of electronic devices on or off when the user/organization intends it to using sensors to detect movement in a particular area.

APPARATUS

- Logitech C270 720p HD Webcam (1)
- Arduino Yun (1)
- Solid State Relay 25Amp (1)
- PIR (Passive Infrared) Sensor HC-SR501 (1)
- Crompton 5W Small Tube Light (1)
- nPn Transistor (1)
- Connecting Wires (20)
- Regulated Power Supply Board (1)
- SMPS Adapter 1A (1)
- Arduino Yun Adapter 1.5A(1)
- Piezo Buzzer (1)
- Wire Cutters (1)

WORKING

- The output of PIR Sensor will be connected to one of the analog ports of the Arduino Yun.
- The input of the Solid State Relay will be connected to the nPn transistor which will then be connected to the input of the Yun board.
- All ground must be kept short so that all electronic devices have the same low & high potentials.
- A HIGH signal from the PIR Sensor when motion will be detected to the Yun Board.
- The Yun Board will then send a HIGH signal to the buzzer, transistor & the camera attached.
- The buzzer will beep continuously, and the transistor will send a high signal to the relay connecting the circuit so as to turn on the emergency light.
- The camera will take a picture and send it to any Cloud Storage account instantly.
- All the devices will be in LOW mode until the sensor captures any movement.

REAL WORLD APPLICATIONS

- Break-in detection & alarm (Security)
- Intelligent Power Solutions: Turning any electronic device ON/OFF automatically using motion detection
- Smart Parking
- Home, Building Automation