IoT based Home Switch controller based on early ThunderStorm Detection

Project Members

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Key Features

- Designing an automated system:
  - Detects Thunderstorm’s phrase early.
  - Sending signal to home switch.
  - Automatically turn off the switch based on the severity of lightning.
  - Can do further thunderstorm analysis.

Working Procedure

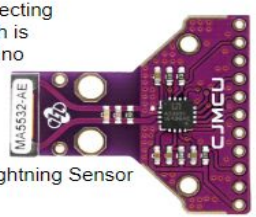
- Early alert of thunderstorms:
  - Detects both cloud-to-ground and intra-cloud (cloud-to-cloud) flashes.
- Controlling home main switch based on lightning class:
  - If detects Class 2 and 3, signal is sent to relay.
  - Relay will turn off the main switch.
- For further analysis, Thunderstorm data will uploaded to cloud.
- Through mobile app analysis report can be viewed and,
- Relay can also be controlled by apps.

Proposed Methodology

Arduino UNO

It connects AS3935 sensor, Relay and GSM SIM800L with it.

1. AS3935 sensor detecting thunder strike which is connected to Arduino



AS3935 Lightning Sensor

Relay

2. After a thunder strike detection the signal is sent to relay. Based on the RF it shuts down the main switch and starts it up after the thunder storm.

Main Switch Board connected with Arduino UNO

GSM SIM800L

3. After the thunder strike detection, GSM SIM800L will send all the sensor data to ThingSpeak platform for further analysis.

ThingSpeak

4. Further data analysis and sensor report can be monitored through a mobile app which will be connected with ThingSpeak.

5. Using mobile app Relay can be controlled which means the main switch can be turned on and off whenever the owner needs.

Project Objectives

- To save millions of electronic devices from thunderstrike.
- To make it a cheaper solution for commercial use.
- To save human from electric occurrences.

Thank you