

MPCA LAB MINI PROJECT

PROJECT TITLE: Server Protect

SECTION: A1

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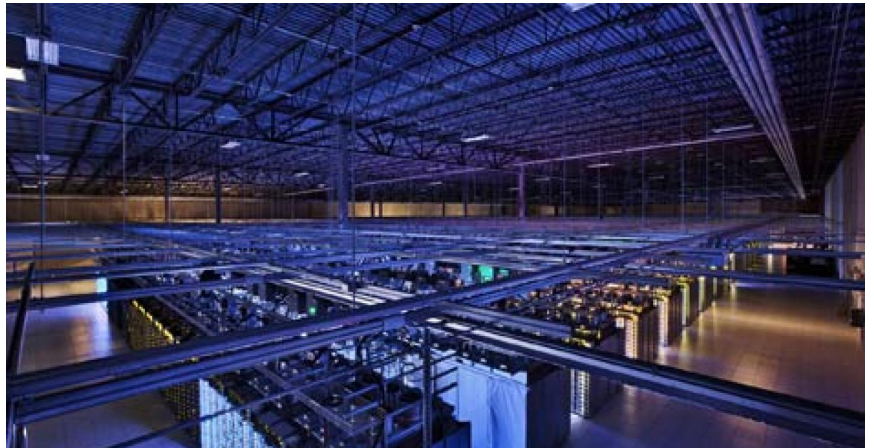
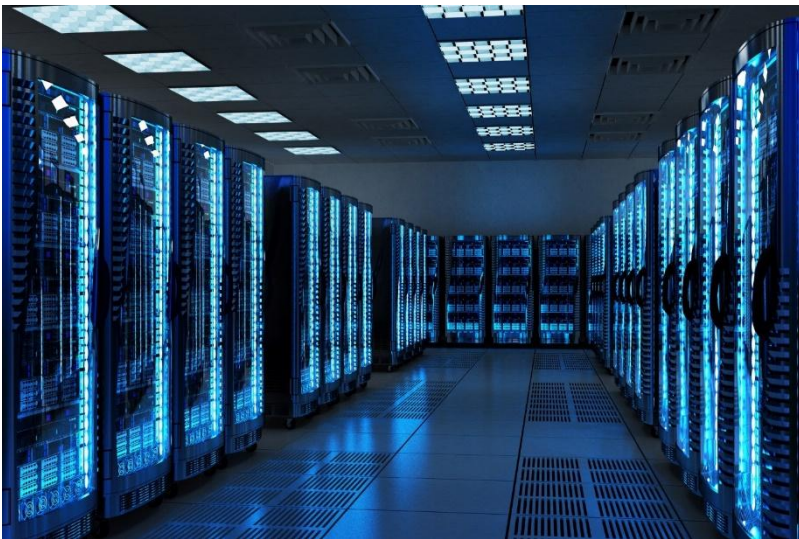
PROBLEM STATEMENT

A secure system is required to maintain continual operation of server farms as these farms amount to lot computation in terms of data around the world. The system should include the following functionality.

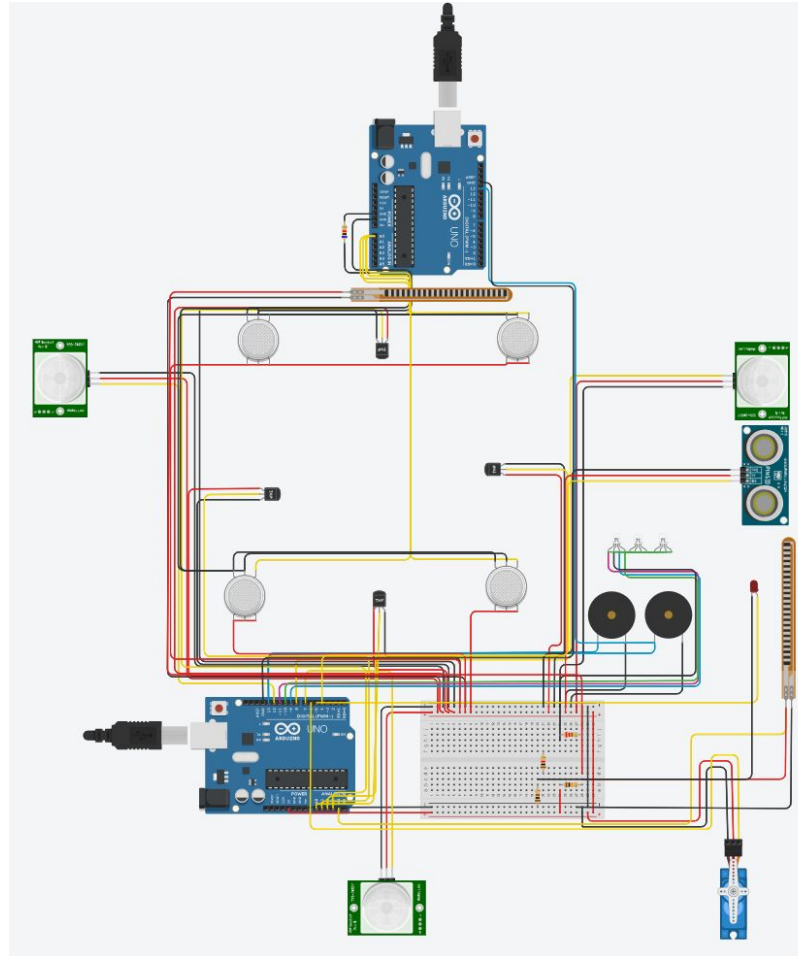
1. Detecting any abnormal temperature changes inside the unit.
2. Detecting any structural damage to the servers.
3. Detecting movement of any intruders trying to access the servers physically.
4. Detecting fire inside the room hosting the servers.

INTRODUCTION

- Most of today's high computing services offered by different companies as different or on different platforms is responsible for a fast and efficient internet.
- For data to be processed at such high speeds specialized server farms are established across many countries. These server farms have computing devices running around the clock all the time. Hence, it is necessary to monitor them for any errors or issues.
- Hence, different sensors need to be installed as security measures.



BLOCK DIAGRAM



REQUIRED COMPONENTS

- Arduino uno R3
- Micro servo motor
- PIR sensor
- Ultrasonic Distance sensor
- Temperature sensor
- Gas sensor
- Flex sensor
- RGB and single colour LED
- Breadboard small
- Piezo
- Resistor

PROJECT DESCRIPTION/DEMONSTRATION

- On detecting abnormal temperature the RGB led change color according to the criticality of temperature
- On detecting gas the piezo will vibrate
- On detecting significant flex the led lights up signaling structure damage
- On detecting motion the PIR sensor will rotate the distance sensor to the corresponding PIR sensor and based on the distance calculated by the sensor the piezo will be vibrate at varying frequency

APPLICATIONS

- Safety system for large scale server farms.
- By switching the piezo to a high powered laser the same system can be used as a part for space stations to detect gas leaks inside the station, monitor temperature, and destroying smaller debris in outer space

REFERENCES(Website links, Books etc.)

- <https://www.tinkercad.com/things/gmIVPAIOwXt-flex-sensor>
- <https://www.tinkercad.com/things/1Sg0hWQGjIU-gas-sensor>
- <https://www.tinkercad.com/things/fzViPd8sSge-servo-motor>
- <https://www.tinkercad.com/things/2ovnobxW8bN-copy-of-rgb-led/editel?tenant=circuits>

THANK YOU