MAIDS

Meis Alarm Intrusion Detection System

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INTRODUCTION

Break-ins occur every 90 seconds in Canada!

MEIS ALARM
INTRUSION DETECTION SYSTEM

MAIDS (Meis Alarm Intrusion Detection System) is a real-world IoT distributed system alarm project providing multi-channel alerts and remote Android application control during an intrusion event.

RESOURCES

Raspberry Pi 4 Model B 2019 Quad Core – MNP: 2GB-9003 - https://www.buyapi.ca

LED Sensor Module – MNP: 2SSR - https://www.amazon.ca

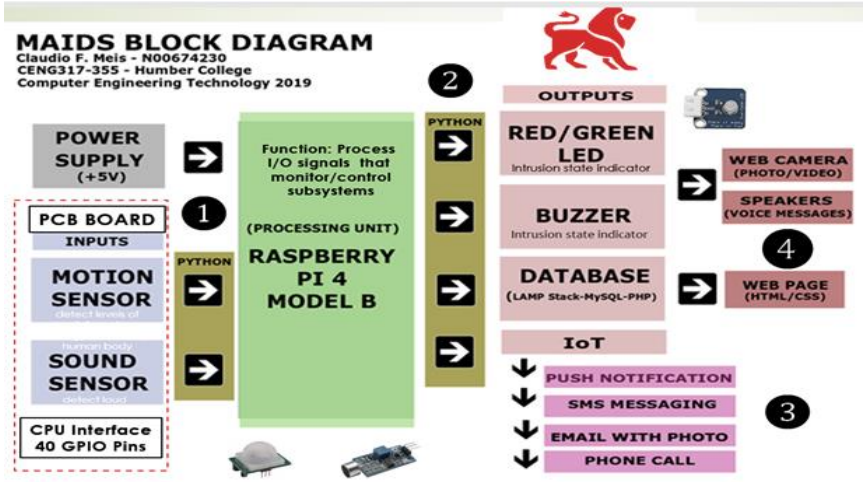
HC-SR501 Pyroelectric Infrared Sensor – MPN: 4260474030781 - https://www.amazon.ca

Microphone Audio Amplifier Module – MNP: STK01140116717 – https://www.amazon.ca

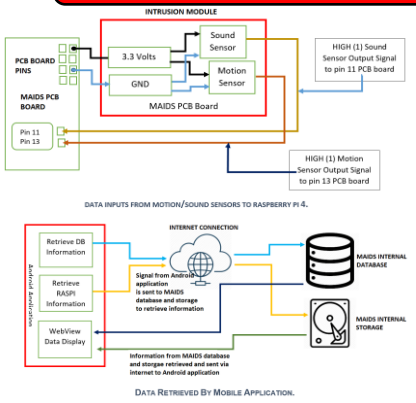
Facilities & Tools:

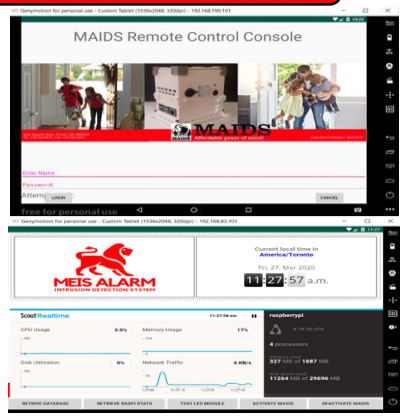
HC Prototyping Lab Bld. J, Room J201 - ProtoLaser S - ProtoMat S103 - Speedy 100 Laser Engraver - Weller Soldering Station - GDM-8135 Multi Meter

ELECTRONICS & FIRMWARE INTERACTION



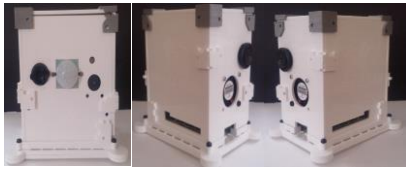
MOBILE APPLICATION AND DATABASE





The Android application is composed of two activities: login activity (authenticates user) and Data/Control activity (remote control and retrieval of information). The Android application uses button elements to retrieve, via Internet, intrusion data (i.e. time of intrusion, intrusion location, etc.) from the MySQL database located on the MAIDS device along with real-time statistical information information and displays said information on the Android application screen via WebView elements.

ENCLOSURE



The MAIDS' enclosure was designed with CorelDraw 2018 for laser cutting by exporting a .svg file (max. size 12″x 24″) and in landscape orientation. Its artwork employs vector lines with stroke width set to Hairline (0.000 mm). Outside laser cuts are colored green; inside cuts are colored red. Etching of words/logos requires other colors and thicker lines which result in burning off a light layer of the top material. The MAIDS enclosure with size 85 mm (length) x 56 mm (width) used 3 mm thick acrylic to create a small footprint, hollow shell design for easy assembly and component protection. The MAIDS enclosure design also includes heat dissipation measures: a) 30 mm fan, and 2) four heatsinks.

CONCLUSIONS

- Surveillance Capabilities
- Multi-channel Alerts
- Motion & Sound Detection
- Visual Capabilities
- Signal Processing Circuitry
- Android Tablet Remote Control
- Secure Interaction (SSH)
- Web-Based Intrusion DB

REFERENCES

https://github.com/srgawain2264/CENG317-MAIDS_PROJECT/blob/master/CENG355/CENG_355_MAIDS_PROJECT_FINAL_REPORT_CFMEIS/CENG355%20Capstone%20Project%20Final%20Report_CFMN00674230_Rev_2a%20(21).pdf