PLAYGROUND SENSORS

Department of Electrical and Computer Engineering

INTRODUCTION

West Kingswood Park with Sensors (Grey Blocks)

The playground maintenance and new playground installation is around $40,000 and up. Our goal is to measure the usage of each playground in Halifax using the detecting system with several sensors.

High Accuracy!

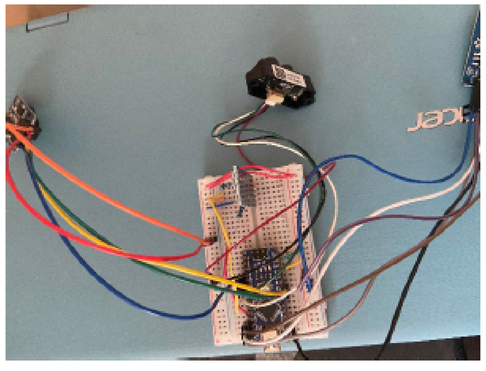
No Camera for Privacy Protection!!

Long-Duration!!!

Phone Size!!!!

DESIGN PROCESS

We built a detection system, which could detect the children passing by the sensors and then use the data to the local SD card. Two of the detection sensors could communicate with each other and transfer data with each other.



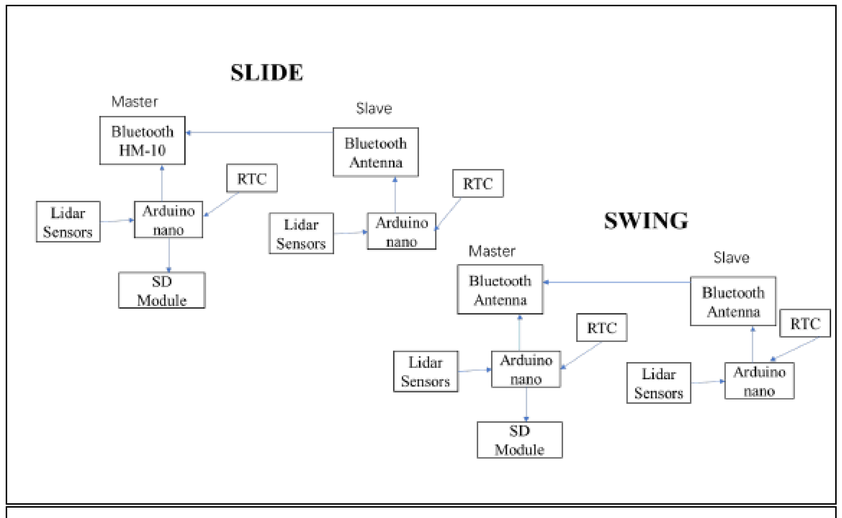
DETAIL OF DESIGN

The sensors could connect with each other automatically when power is on, the sensors will be able to close after 9PM and reopen at 7AM in next day. Each part of the detection system is using two 9V batteries to power up.

The accuracy testing results are shown below:

	Temperature	Accuracy
Daytime	10 Celsius	90%
Daytime	25 Celsius	88%
Nighttime	12 Celsius	87%
Nighttime	3 Celsius	92%

As we can see that the sensors accuracy is not affected by the temperature and the lighting environment.



The Architecture of The Detection System

As we can see that, the two detection systems are the same because the ideas to count number of people for swings and slide.

Size of The Hard Shell

CONCLUSION

1. Our system would be able to detect the and count the number of usages of the playground.
2. The system can tell you the time and date and how many people used this playground.
3. The system can tell which data is for slides and which data is for swings.
4. However, our system would not be able to run one month long as we expected before.

RECOMMANDATION

1. The system should be able to tell when the power drops to low
2. The size of each part of the detection system could be shrink more.
3. Raspberry pi could be used for higher budgets for future project, which could help all the processor connect as one system.

REFERENCE

Jim Kochanoff, ECED4900/4901 Project Proposal, Kingswood Ratepayers Association Resources, 2021.