

Parking Management System

Using the VCNL 0x13 Proximity Sensor

Proposal

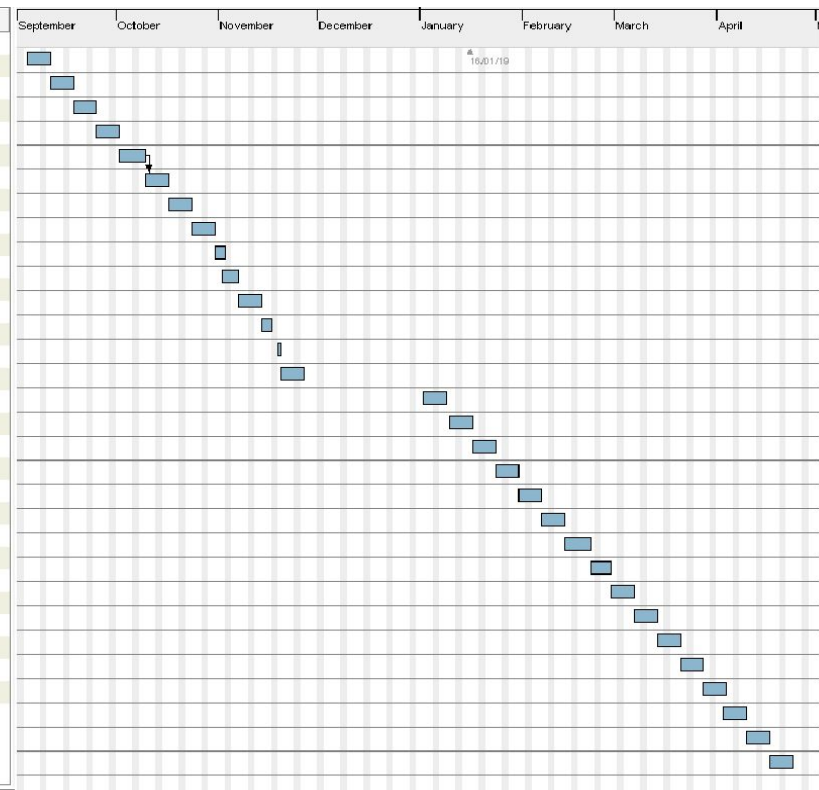
1. Locate available parking spaces
2. Handle automatic parking ticket payment
3. Work without the need for human interference.

Budget

~ \$125 CAD

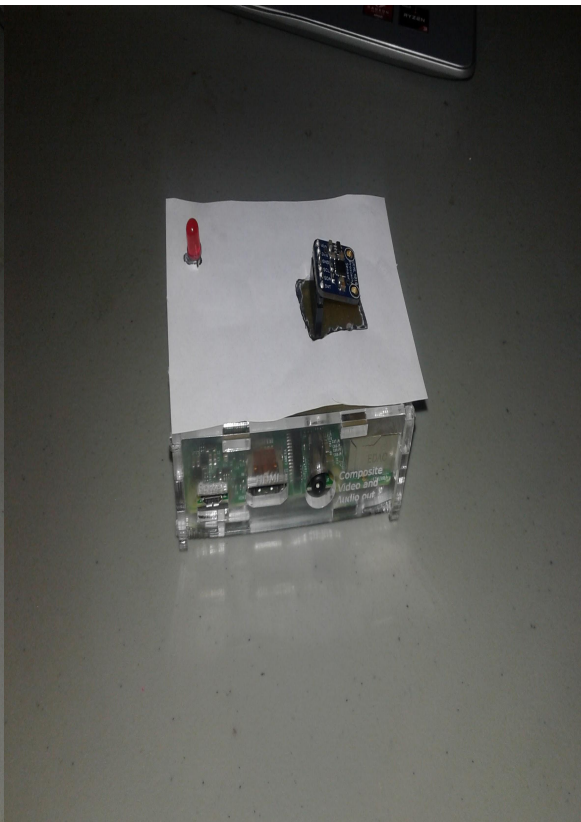
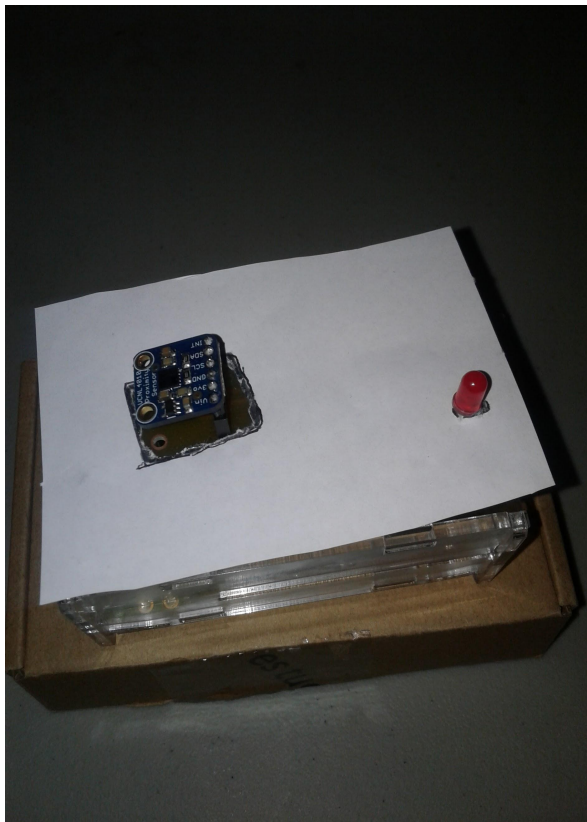
RaspberryPi+Camera+ProximitySensor+
Wires

Name	Begin date	End date
• Project Proposal	04/09/18	10/09/18
• Project Schedule	11/09/18	17/09/18
• Budget Plan	18/09/18	24/09/18
• Project Documentation & Proof of purchase	25/09/18	01/10/18
• Reading Week (Document,Watch Linda Videos)	02/10/18	09/10/18
• Project parts acquisition display	10/10/18	16/10/18
• Mechanical Assembly Milestone(Pseudocode)	17/10/18	23/10/18
• Powerup Milestone(Breadboard)	24/10/18	30/10/18
• Design PCB	31/10/18	02/11/18
• Solder PCB	02/11/18	06/11/18
• Build Video	07/11/18	13/11/18
• Progress Report Due	14/11/18	16/11/18
• Fall Open House	19/11/18	19/11/18
• Build Log Entry	20/11/18	26/11/18
• Scheduling and group meetings	02/01/19	08/01/19
• Group projects status update	10/01/19	16/01/19
• App,Web and Database Software Requirements and Spe...	17/01/19	23/01/19
• Group projects status update	24/01/19	30/01/19
• Group project status update	31/01/19	06/02/19
• App, Web and Database Independent Demonstration	07/02/19	13/02/19
• Reading Week	14/02/19	21/02/19
• Group project status update	22/02/19	27/02/19
• Group Integration	28/02/19	06/03/19
• Group project status update	07/03/19	13/03/19
• Group troubleshooting	14/03/19	20/03/19
• Group project status update	21/03/19	27/03/19
• Group physical enclosure complete	28/03/19	03/04/19
• Project Demonstration	03/04/19	09/04/19
• Group presentations	10/04/19	16/04/19
• Group Final Report Due	17/04/19	23/04/19



Schedule

HARDWARE



Address Screen Capture

```
pi@raspberrypi:~/Desktop/PMS $ i2cdetect -y 1
    0  1  2  3  4  5  6  7  8  9  a  b  c  d  e  f
00:                -- -- -- -- -- -- -- -- -- --
10: -- -- -- 13 -- -- -- -- -- -- -- -- -- --
20: -- -- -- -- -- -- -- -- -- -- -- -- -- --
30: -- -- -- -- -- -- -- -- -- -- -- -- -- --
40: -- -- -- -- -- -- -- -- -- -- -- -- -- --
50: -- -- -- -- -- -- -- -- -- -- -- -- -- --
60: -- -- -- -- -- -- -- -- -- -- -- -- -- --
70: -- -- -- -- -- -- -- -- --
pi@raspberrypi:~/Desktop/PMS $
```



```
pi@raspberrypi:~/Desktop $ python3 pms.py
```

Proximity: 2244

Vacant space present

Proximity: 2294

Vacant space present

Proximity: 65535

Car detected in range

Timing minute 1

Timing for minute completed

Proximity: 65535

Car state unchanged

Timing minute 2

Timing for minute completed

Proximity: 65535

Car state unchanged

Timing minute 3

Timing for minute completed

Car was parked for 3 minutes with a total charge of \$0.039 at \$0.013 per minute

```
pi@raspberrypi:~/Desktop $ █
```

Courses used

- TECH 104 Programming Fundamentals
- PC Hardware and Operating Systems
- UNIX Scripting