Project Portunus

Matthew Aragaw
Noah De Los Santos
Nazar Rybii
Charanpreet Singh
Development Team

Noah De Los Santos
Matthew Aragaw
Charanpreet Singh
Nazar Rybii
Problem

- New cars let your phone be your keys
- Apps are proprietary
- No solution to use app with old vehicles
Solution

● Plug-n-play lock module
● GPS tracking
● Secure using Allthenticate service
Block Diagram
5V Power

MCP2551

DB9 Port

12V to 5V

MCP2515

40-pin Pi Header
PCB Layout

- 80 X 35mm board
- 4 layer board
- Single sided mounting
- Powered from car 12V line
# Bill of Materials

<table>
<thead>
<tr>
<th>Part</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Raspberry Pi Zero</td>
<td>$15.00</td>
</tr>
<tr>
<td>Custom Board Parts</td>
<td>$7.35</td>
</tr>
<tr>
<td>PCB Manufacturing</td>
<td>$11.70</td>
</tr>
<tr>
<td>GPS/GSM Hat</td>
<td>$31.99</td>
</tr>
<tr>
<td>DB9-OBDII Cable</td>
<td>$9.95</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$75.99</strong></td>
</tr>
</tbody>
</table>
Project Progress - CAN Bus

- CAN access high and low speed bus
- Moved to Ford vehicles
- Can find device ID for lock
- Finding ID ≠ Opening lock
Project Progress - GPS

- Send GPS location data via SMS using a T-Mobile SIM Card
Project Progress - GPS

- Getting locational data both from GPS as well as GSM module. However, currently the GSM module’s output is unclear.
Project Progress - GPS

- Sending the GPS data to Firebase so that the app can access it directly pull data from Firebase.
Project Progress - Mobile App

- Android application done using Android Studio
- Set up firebase to integrate with the app
- Final step: organizing GPS data
Future Goals

- Week 1 - Finish PCB testing
- Week 2 - Revise PCB design
- Week 3 - Order revised PCB
- Week 4 - Design/Print 3D Casing
- Week 5 - App integration
- Week 6 - Quality of life features
- Week 7 - Final testing
- Week 8 - Complete product and app
- Week 9 - Car hacking
- Week 10 - Car hacking
Thank You!

Yoga, Instructor
Chris, TA
Brycen, TA
Chad Spensky, Allthenticate
Evan Blasband, Allthenticate
Questions?