

EML4551-2

Device to Stop Human Trafficking

Team 523

Virtual Design Review 5



Team Introductions



Abraham Barron
Prototyping
Engineer



Alina Montoto
Design
Engineer



Mafuor Tanji
Computer
Engineer



Melanie Munroe
Project Manager
Test Engineer

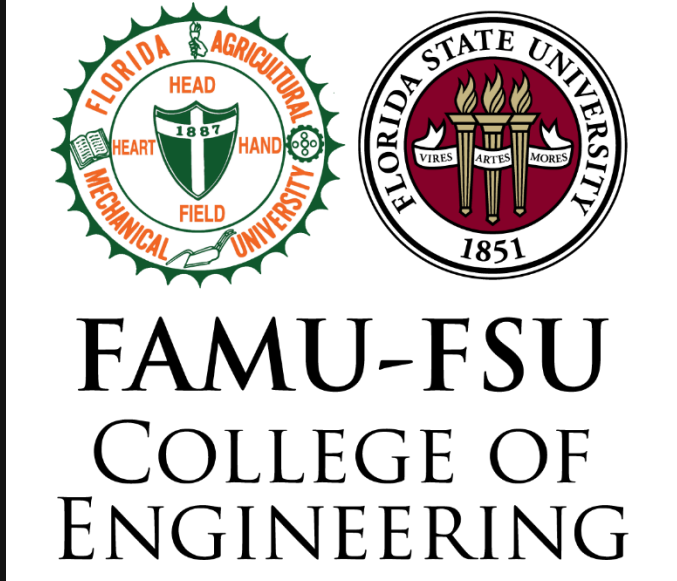


D'Angelo Senat
Industrial
Engineer



Oswaldo Machado
Electrical
Engineer

Sponsor



**FAMU-FSU
COLLEGE OF
ENGINEERING**

**FAMU FSU College of
Engineering Dean's Office**



**Engineering Advisor
Dr. Shayne McConomy**



**Entrepreneurship Advisor
Dr. Michael Devine**

D'Angelo Senat

Objective

The objective of this project is to save an adolescent from trafficking by employing the use of engineering tools

D'Angelo Senat



Background

A prevalent theme amongst children who are trafficked is having a relationship with the pimps who traffic them

D'Angelo Senat

Key Goals

- ✎ Rescue adolescents from dangerous situations
- ✎ Reduce false alarms
- ✎ Design a device that is user friendly and discrete to the public eye
- ✎ Spread awareness around Tallahassee, FL

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Assumptions

✎ The adolescent is of able mind and body

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**Nurse Practitioner Student
Creates Screening To Identify
Human Trafficking Victims**

Primary Markets

- 👉 Adolescents who are being trafficked
- 👉 Tallahassee Police Department

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**Nurse Practitioner Student
Creates Screening To Identify
Human Trafficking Victims**

Secondary Markets

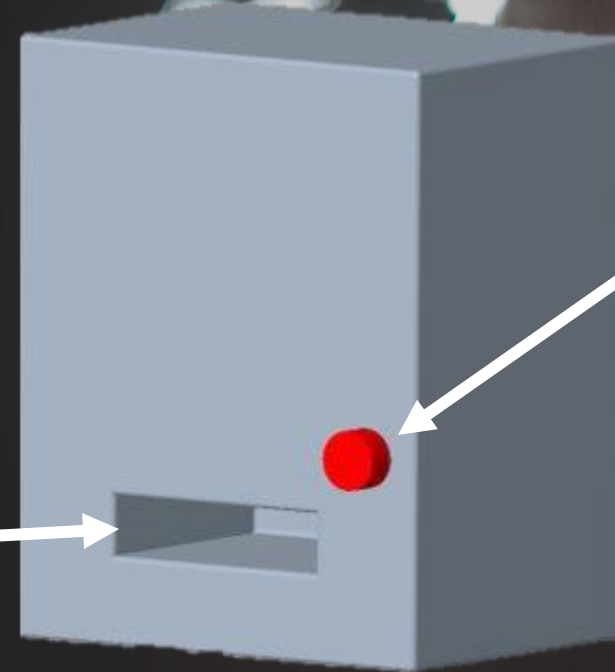
- 👉 **Non-Profits related to Human Trafficking**
- 👉 **Individuals whose safety feels compromised**

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Prior Selected Concept

Vending Machine

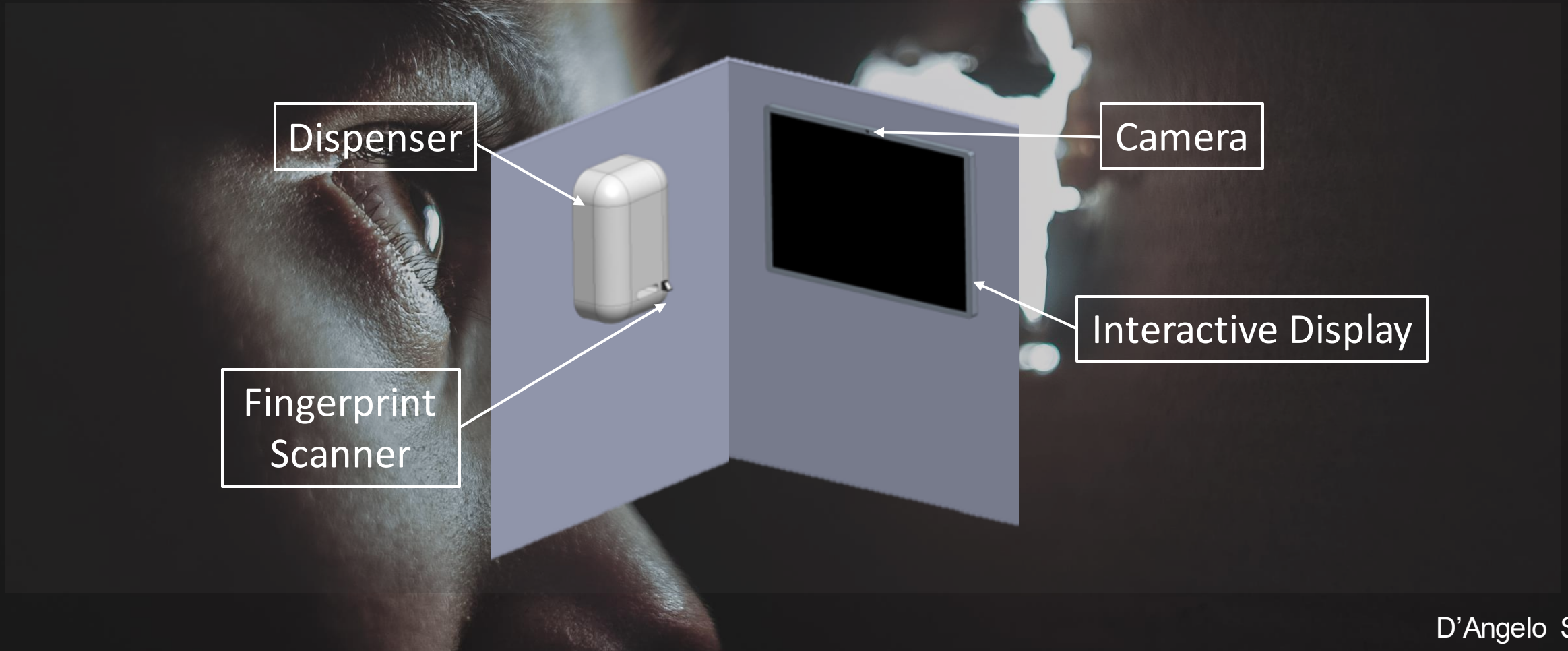
Dispenser
of GPS
tracker



Fingerprint
reader/button

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Updated Selected Concept: Process



D'Angelo Senat

Updated Selected Concept

Step 1: Poster

Do I need a SAFE HAVEN?

Do I feel UNSAFE?

Am I being HURT?

Do I want HELP?



1. Interact with the device by placing your finger on the finger scanner (You are giving CONSENT for being tracked and alerting the authorities)

2. Take what the device dispenses (tracker)

3. HELP is on the way

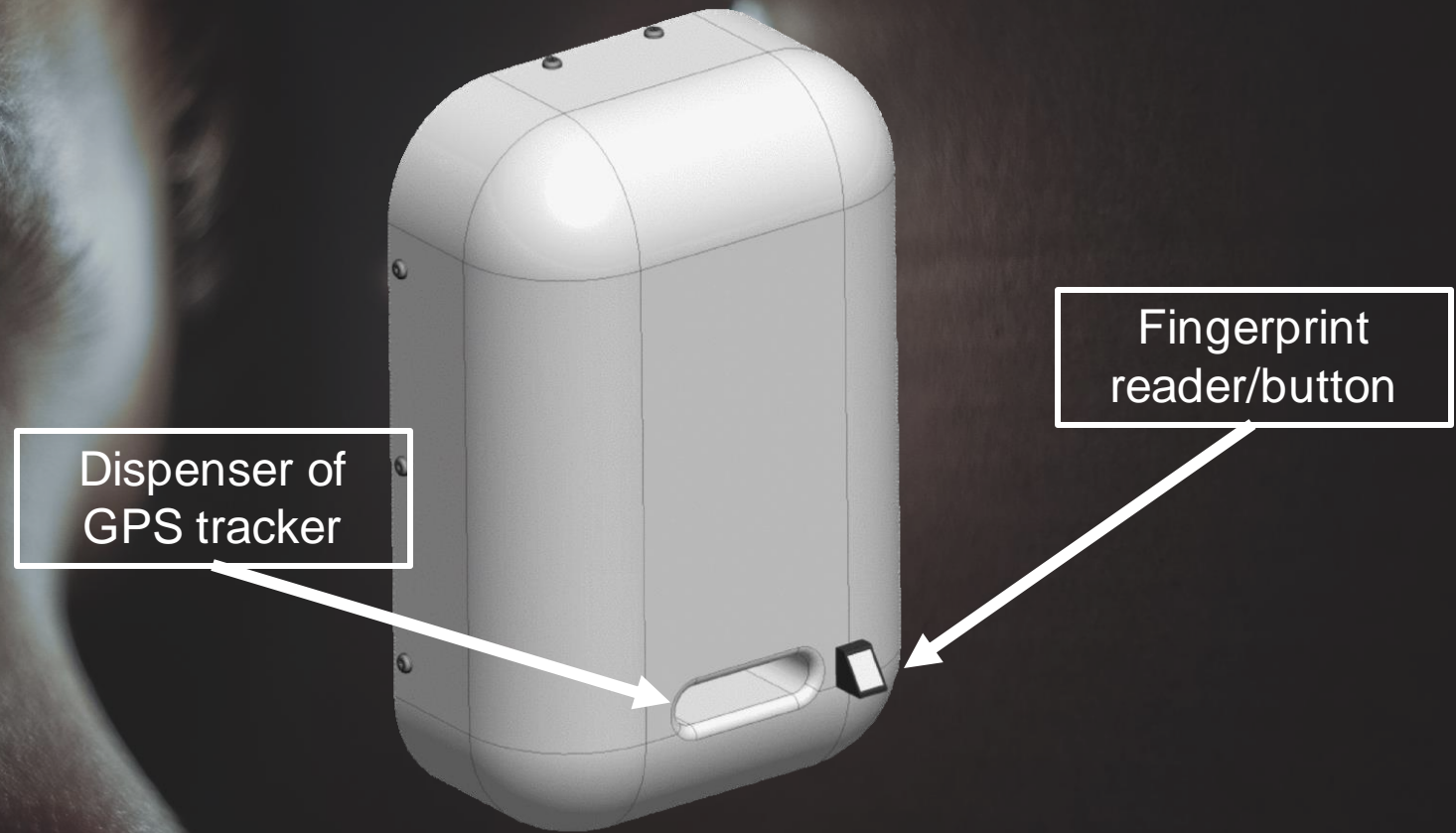
4. Exit and interact with the device outside of the door to gather more information for your rescue



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Updated Selected Concept

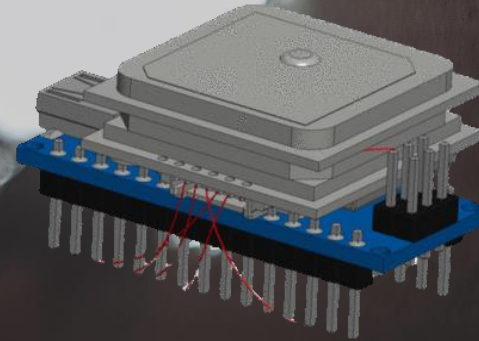
Step 2: Vending Machine



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Updated Selected Concept

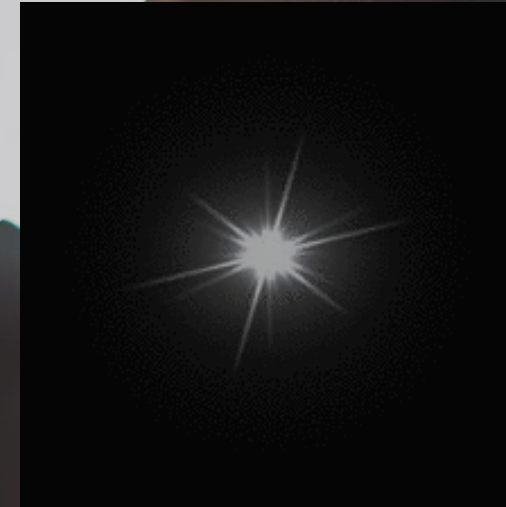
Step 3: GPS Tracker



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Updated Selected Concept

Step 4: Facial Recognition Device



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Current Work

Melanie Munroe



Subsystems



**Fingerprint
Scanning**



GPS Tracking



Display



Vending Machine



**Facial
Recognition**

Melanie Munroe

Subsystems



Fingerprint
Scanning

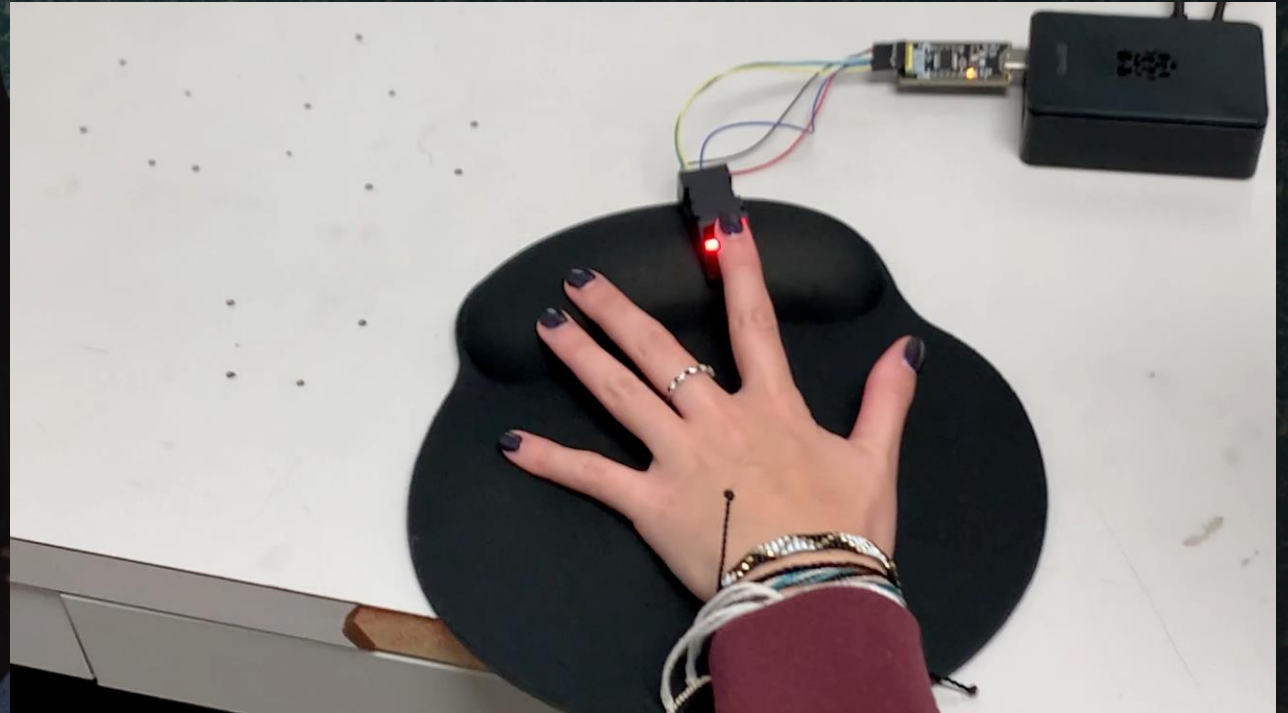
- ✎ Code is completed for the scanning portion
- ✎ When scanned, a picture of the fingerprint is displayed
- ✎ Image of fingerprint gets stored after a couple of seconds of interaction

Melanie Munroe

Subsystems



Fingerprint
Scanning



Melanie Munroe



Subsystems



Fingerprint
Scanning

Future Work

- ✎ Activate phone call system
- ✎ Subsystem merging

Melanie Munroe

Subsystems



**Fingerprint
Scanning**



GPS Tracking



Display



Vending Machine



**Facial
Recognition**

Melanie Munroe

Subsystems



Vending Machine

- 👉 3D printing the vending machine prototype
- 👉 Waiting on filament purchase

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Subsystems



Vending Machine

✎ Considering machining
final design for...

✎ Time

✎ Cost

✎ Clean presentation

Melanie Munroe

Subsystems



**Fingerprint
Scanning**



GPS Tracking



Display



Vending Machine



**Facial
Recognition**

Melanie Munroe

Subsystems



GPS Tracking

- ✎ Development of GPS tracker is completed
- ✎ Tracker has been tested
- ✎ Approximate distance error is 15 ft (target was 16 ft)
- ✎ 3D printed container for GPS

Melanie Munroe

Subsystems



GPS Tracking



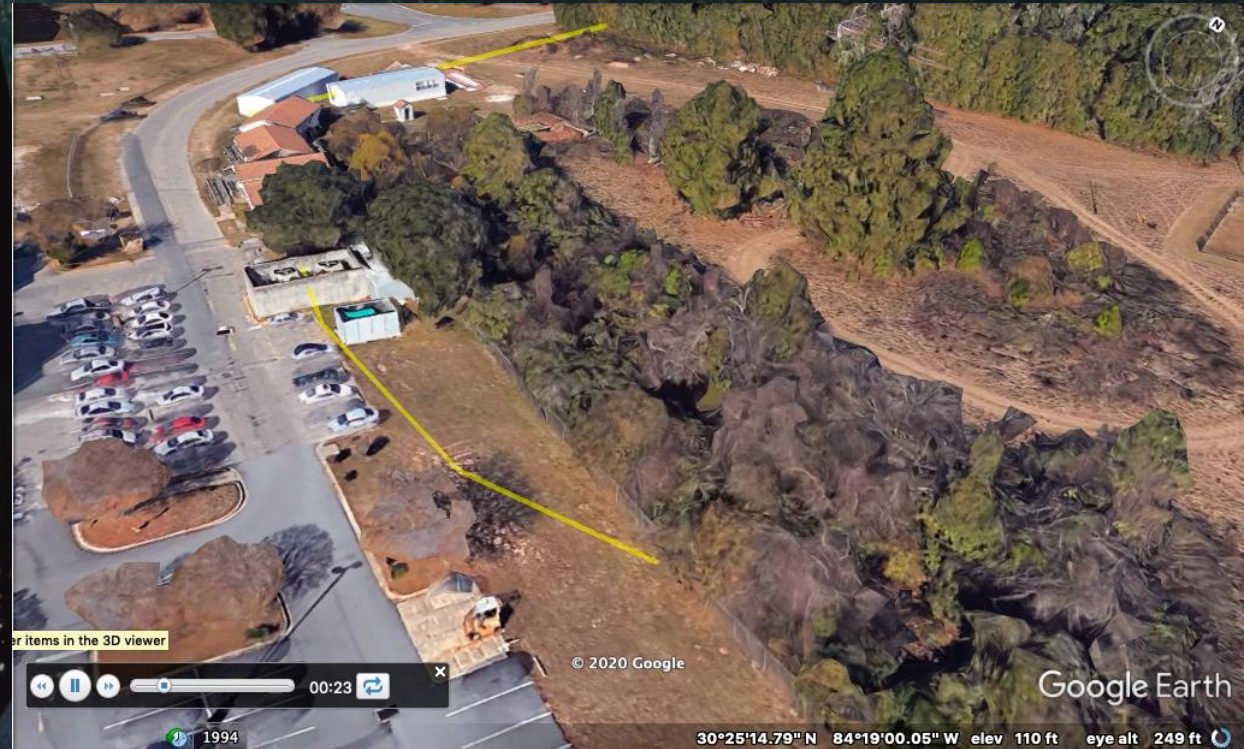
Melanie Munroe



Subsystems



GPS Tracking



Melanie Munroe



Subsystems



GPS Tracking

Future Work

- ✎ Exploring Google Earth live updates to solve interpolation issue
- ✎ Considering creating different GPS trackers for presentations

Melanie Munroe



Subsystems



GPS Tracking

Future Work

- ✎ Designing PCB for tracker
- ✎ Purchasing/designing GPS disguises

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Subsystems



**Fingerprint
Scanning**



GPS Tracking



Display



Vending Machine



**Facial
Recognition**

Alina Montoto

Subsystems



**Facial
Recognition**

- ✎ **Raspberry Pi Camera Module functions properly**
- ✎ **Able to capture images and record surveillance**

Alina Montoto

Subsystems



Facial
Recognition



Alina Montoto



Subsystems



Facial
Recognition

Future Work

- ✎ Implementing Artificial Intelligence capabilities
- ✎ Merging with other subsystems

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Subsystems



**Fingerprint
Scanning**



GPS Tracking



Display



Vending Machine



**Facial
Recognition**

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Subsystems



Display

Future Work

- ✎ Ordering appropriate monitor
- ✎ Designing Engineering Design Day display

Alina Montoto



Future Work

Alina Montoto



Future Design Plans and Progress



Alina Montoto



Budget Report

Money Allotted **\$2,092.00**

Money Remaining **\$1,537.20**

Purchase Date	Money Spent
Dec-06-2019	\$157.69
Jan-08-2020	\$243.83
Jan-29-2020	\$18.70
Feb-19-2020	\$52.78
Feb-26-2020	\$76.80
Feb-27-2020	\$5.00
Total Money Spent	\$554.80

Alina Montoto



Competitions

-  **InNOLEvation** – February 4th - March 6th – Tallahassee FL
-  **Munimod** – April 4th -5th – Orlando FL
-  **Shark Tank** – April 23rd – Tallahassee FL
-  **Schulze Entrepreneurship Challenge** – April 23rd - 25th – Minneapolis MN
-  **Engineering Design Day** – April 23rd – Tallahassee FL
-  **TCU's Values and Ventures Competition** – April 24th - 25th – Fort Worth TX

Alina Montoto

References

- Adult black and white darkness face: <https://www.pexels.com/photo/adult-black-and-white-darkness-face-1161268/>
- Background image: <https://unsplash.com/photos/yqJ5jb7FEsl>
- Hand image: <https://unsplash.com/photos/nwWUBsW6ud4>
- Eye image: <https://unsplash.com/photos/xsGApcVbojU>
- Woman in alleyway: <https://images.unsplash.com/photo-1511297968426-a869b61af3da?ixlib=rb-1.2.1&q=80&fm=jpg&crop=entropy&cs=tinysrgb&dl=eric-ward-akT1bnnuMMk-unsplash.jpg>
- Woman in hood: <https://www.pexels.com/photo/adult-alone-backlit-dark-278303/>
- Woman with sunset: <https://www.pexels.com/photo/woman-looking-at-sunset-247195/>
- Rainbow sunset: https://unsplash.com/photos/odxB5oIG_iA
- Sad girl on water: <https://www.pexels.com/photo/woman-looking-at-sea-while-sitting-on-beach-247314/>
- Hand with chains: <https://unsplash.com/photos/zh0J32MrJfA>

Alina Montoto

Questions

“This is an incredibly innovative use of technology to give a very vulnerable population a discreet way to reach out to the help they desperately need. We believe this has the ability to make a tremendous impact.”

*Investigator Elizabeth Bascom
& Paul Osborn*