



**EM 4551-2**

# Device to Stop Human Trafficking

**Team 523**

**Virtual Design Review 4**



# Team Introductions



Melanie Munroe  
**Project Manager**  
**Test Engineer**



Mafuor Tanji  
**Computer**  
**Engineer**



Alina Montoto  
**Design**  
**Engineer**



Abraham Barron  
**Prototyping**  
**Engineer**

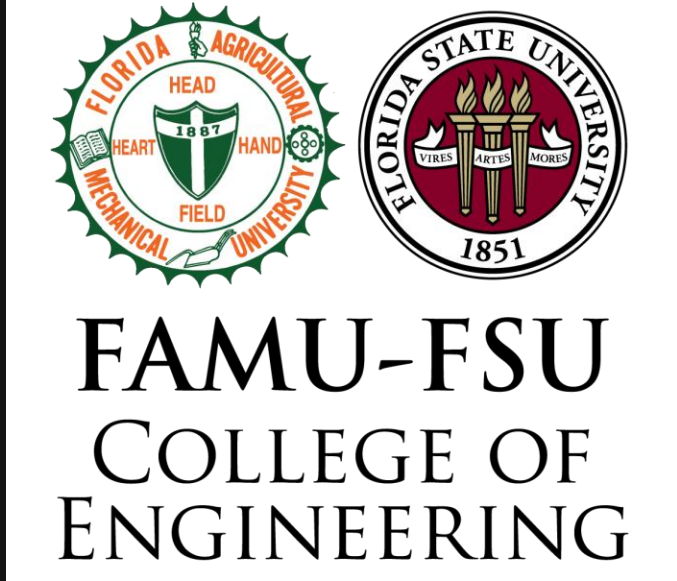


Oswaldo Machado  
**Electrical**  
**Engineer**



D'Angelo Senat  
**Industrial**  
**Engineer**

# Sponsor



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



**Engineering Advisor  
Dr. Shayne McConomy**



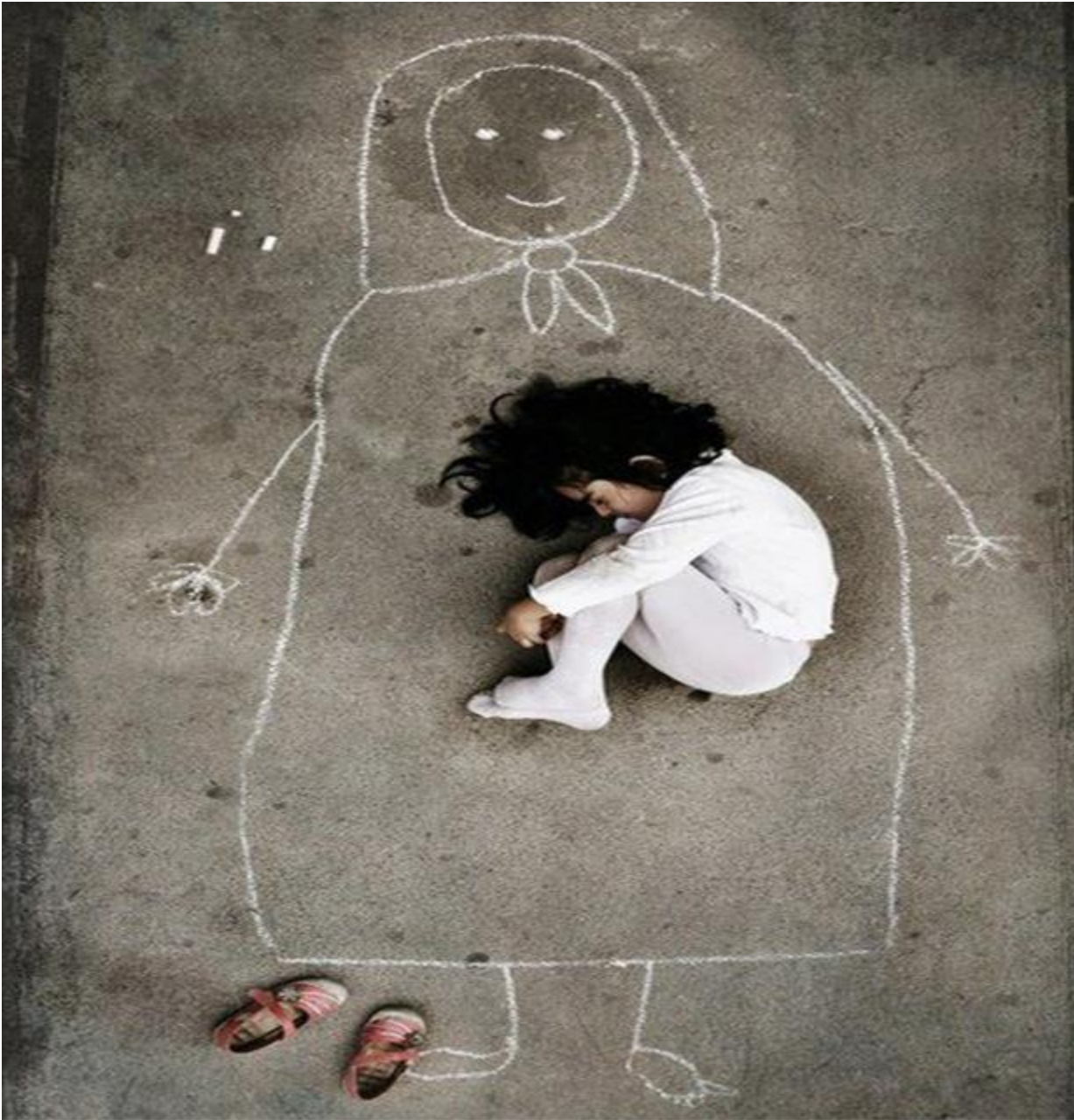
**Entrepreneurship Advisor  
Dr. Michael Devine**

Mafuor Tanji

# Objective

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

Mafuor Tanji



# Background

A prevalent theme amongst children who are trafficked is having parents who traffic them to support their drug habits

Mafuor Tanji

# Key Goals

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

## Assumptions

- ✎ The adolescent is of able mind and body

Mafuor Tanji

# Markets



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

## Primary Market

👉 Adolescents in dangerous situations

Mafuor Tanji

# Markets



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

## Secondary Markets

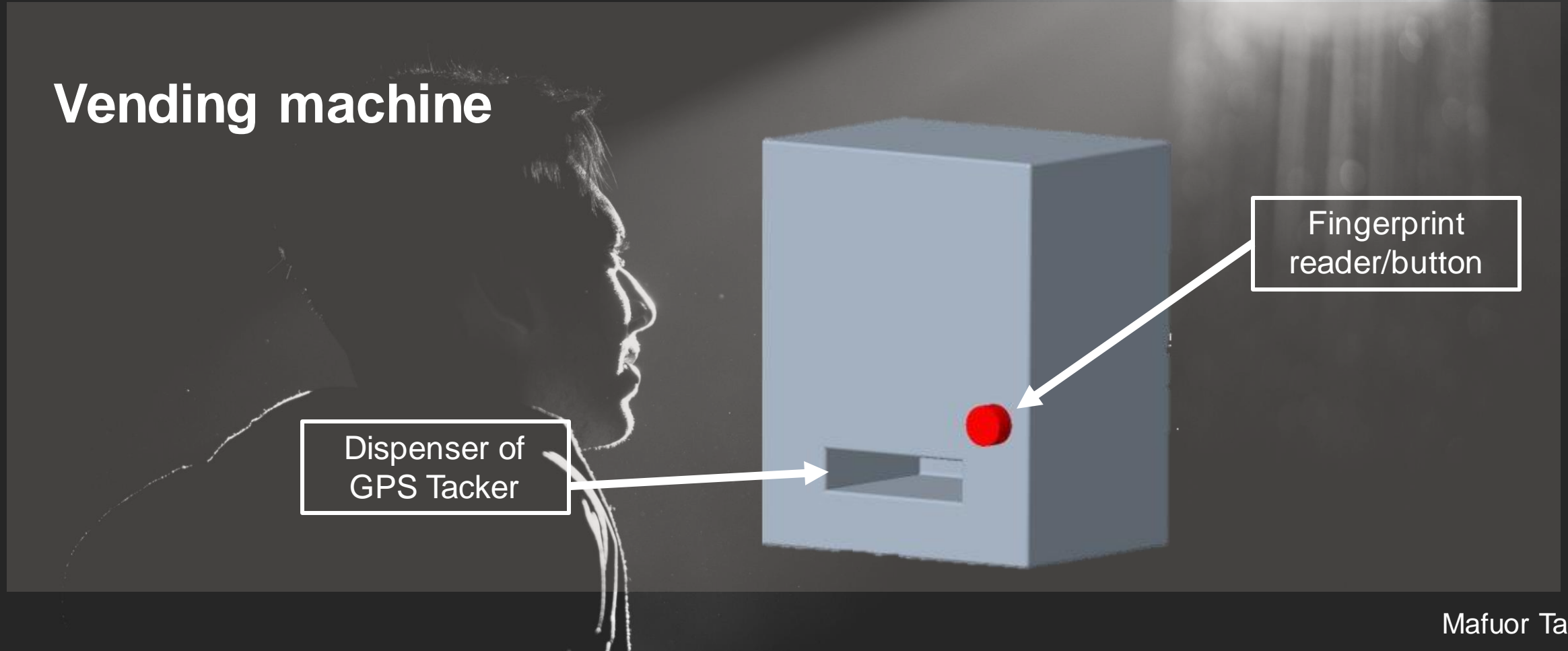
- ✎ Tallahassee Police Department
- ✎ Non-Profits related to Human Trafficking
- ✎ Individuals whose safety feels compromised

Mafuor Tanji



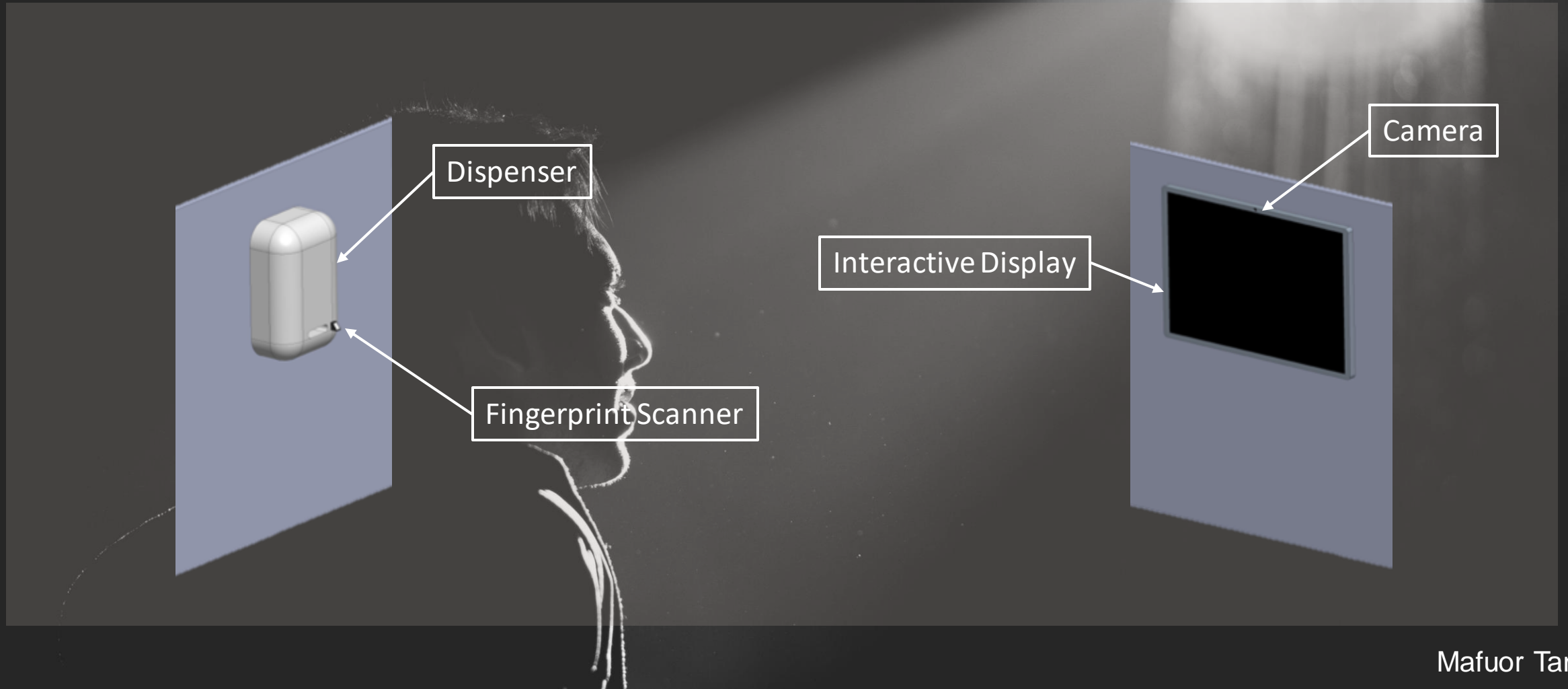
# Prior Selected Concept

## Vending machine



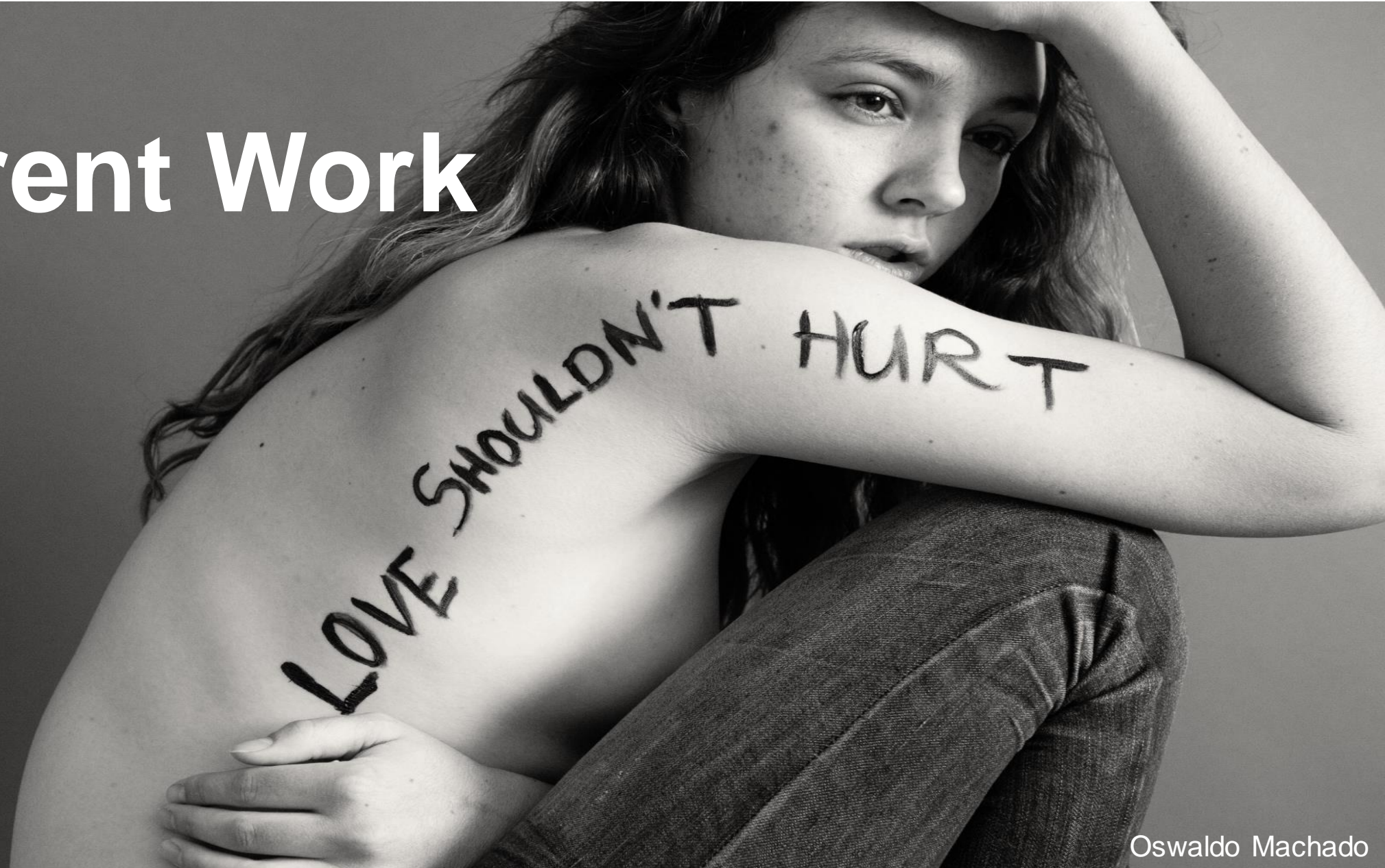
Mafuor Tanji

# Updated Selected Concept



Mafuor Tanji

# Current Work



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# Subsystems



**Fingerprint  
Scanning**



**GPS Tracking**



**Interactive  
Display**



**Vending Machine**



**Facial  
Recognition**

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# Subsystems



**Fingerprint  
Scanning**

## Tasks

- ✎ **Alert Authorities**
- ✎ **Dispense GPS Tracker**
- ✎ **Record Fingerprint**
- ✎ **Activate Tracker**
- ✎ **Activate Camera**

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# Subsystems



**Fingerprint  
Scanning**

## Components

- ✎ Raspberry Pi
- ✎ Fingerprint Scanner
- ✎ Raspbian (software)

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# Subsystems



**Fingerprint  
Scanning**

## Current Status

- ✎ Received Parts
- ✎ Hardware has been assembled

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# Subsystems



**Fingerprint  
Scanning**

## Pending

- 👉 Raspbian download on school computer
- 👉 Raspbian download to microSD

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# Subsystems



**Fingerprint  
Scanning**



**GPS Tracking**



**Interactive  
Display**



**Vending Machine**



**Facial  
Recognition**

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# Subsystems



Vending Machine

## Tasks

- ✎ Receive input from fingerprint scanner via Raspberry Pi
- ✎ Release GPS Tracker

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# Subsystems



Vending Machine

## Components

- ✎ Raspberry Pi
- ✎ Raspbian (software)
- ✎ Vending Machine

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# Subsystems



Vending Machine

## Current Status

- ✎ Designing both idealized CAD and Engineering Design Day CAD

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# Subsystems



Vending Machine

## Pending

✎ Awaiting further progress on fingerprint scanning subsystem and GPS tracking subsystem

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# Subsystems



**Fingerprint  
Scanning**



**GPS Tracking**



**Interactive  
Display**



**Vending Machine**



**Facial  
Recognition**

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# Subsystems



**GPS Tracking**

## Tasks

- ✎ Return latitude, longitude, date, and velocity during use
- ✎ Identify system when in range of interactive display

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# Subsystems



**GPS Tracking**

## Components

- ✎ **GPS tracking module**
- ✎ **Arduino nano**
- ✎ **Printed Circuit Board (PCB)**
- ✎ **Battery Pack**

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# Subsystems



GPS Tracking

## Current Status

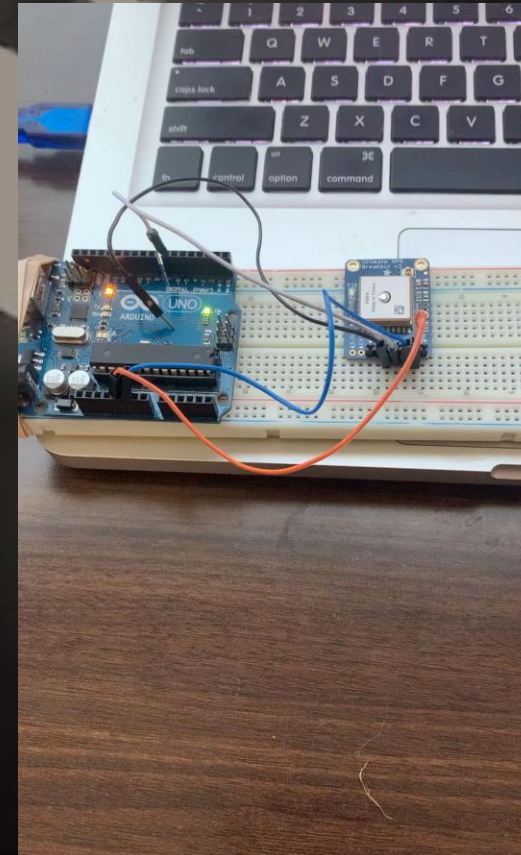
- ✎ Testing with personal Arduino. Have gotten the GPS to work, returning location points, date, and velocity

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# Subsystems



GPS Tracking



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# Subsystems



GPS Tracking

## Pending

- ✎ Awaiting arrival of battery pack, and Arduino nano
- ✎ PCB design
- ✎ Planning disguise to create for competitions and engineering design day

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# Subsystems



**Fingerprint  
Scanning**



**GPS Tracking**



**Interactive  
Display**



**Vending Machine**



**Facial  
Recognition**

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# Subsystems



Facial  
Recognition

## Tasks

- ✎ Communicate via Bluetooth with GPS device to capture image
- ✎ Identify victim
- ✎ Build a data base of information on victim

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# Subsystems



Facial  
Recognition

## Components

- ✎ Raspberry Pi
- ✎ Raspberry Pi Camera
- ✎ Intel Neural Compute Stick
- ✎ OpenVino (software)

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# Subsystems



Facial  
Recognition

## Current Status

- ✎ Acquired all necessary parts
- ✎ Initiating process to start installing software

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# Subsystems



**Facial  
Recognition**

## Pending

- 👉 Software download
- 👉 Set up the camera and Raspberry Pi
- 👉 Interface all components to create facial recognition

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# Subsystems



Fingerprint  
Scanning



GPS Tracking



Interactive  
Display



Vending Machine



Facial  
Recognition

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# Subsystems



**Interactive  
Display**

## Tasks

- ✎ Aid in discretely housing facial recognition camera
- ✎ Provide a distraction to trafficker
- ✎ Showcase technological aspects of the project (Engineering Design Day)




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# Subsystems



**Interactive  
Display**

## Components

-  **Touch Screen Monitor**
-  **HDMI Cord**
-  **Atom (software)**



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# Subsystems



**Interactive  
Display**

## Current Status

- ✎ Identified parts needed
- ✎ Design plan in progress



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# Subsystems



**Interactive  
Display**

**Pending**

- ✎ **Confirm  
design implementation**
- ✎ **Order parts**
- ✎ **Assemble system**



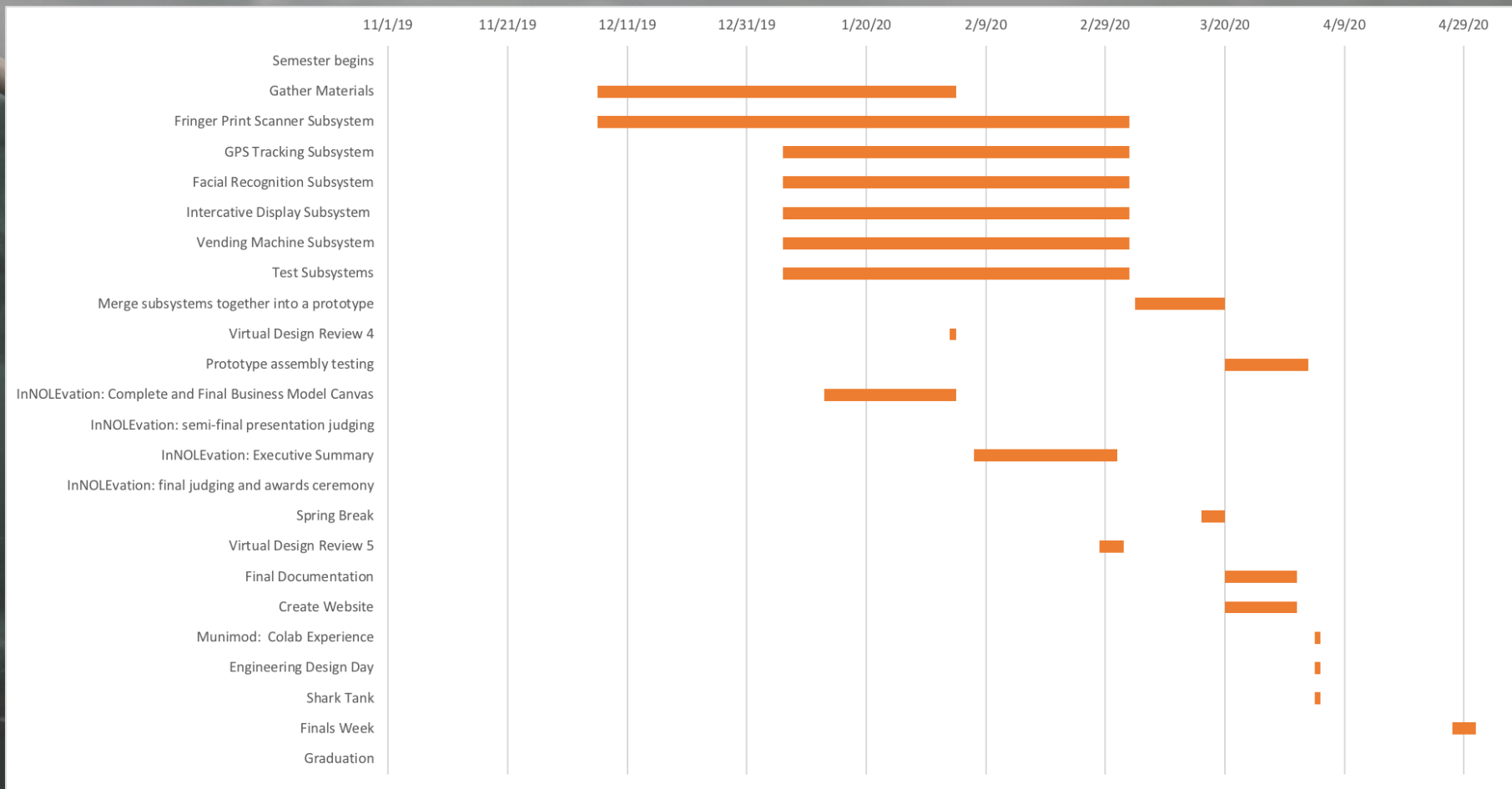
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# Future Work




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# Future Design Plans and progress





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# Competitions

 **InNOLEvation** – February 4th - March 6th – Tallahassee FL

 **Munimod** – April 4th-5th – Orlando FL

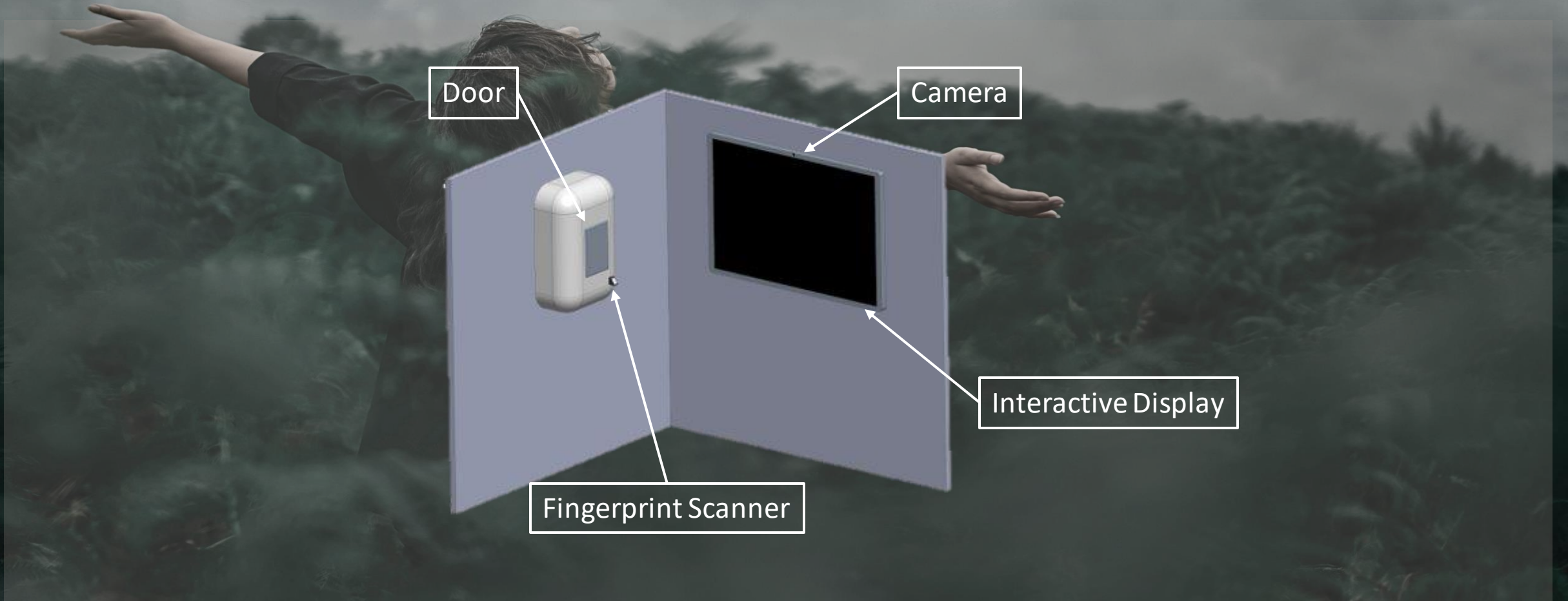
 **Shark Tank** – April 23rd – Tallahassee FL

 **Engineering Design Day** – April 23rd – Tallahassee FL

Abraham Barron



# Engineering Design Day Showcase



Abraham Barron

# References

- Woman with Hand Over Mouth Image: <https://internetsafety101.org/trafficking>
- Woman shadow over face: <https://www.pexels.com/photo/monochrome-photo-of-woman-3225796/>
- Woman with Barcode Tattoo Image: <https://badgerherald.com/opinion/2018/10/23/contrary-to-popular-belief-sex-trafficking-is-an-issue-in-wisconsin/>
- Live Free Image: <https://www.pghcitypaper.com/Blog/archives/2015/11/10/point-park-university-hosts-panel-discussion-tomorrow-night-on-human-trafficking>
- Little Kid I am Not for Sale Image: <https://www.pacificmistphotography.com/new-blog/2018/5/12/human-trafficking-we-are-not-for-sale>
- Woman Behind Bars: <http://www.studentshow.com/gallery/50014891/Photography-poster-about-human-trafficking>
- Woman Shhh: <https://warinternational.org/human-trafficking-prevention-month/>
- Little Kid Looking Out a Hole: <https://www.ucf.edu/news/how-to-identify-potential-human-trafficking-victims/>
- Teddy Bear: <https://www.venturalaw.com/pt/child-sex-trafficking/>
- Hand to the face and arm extending: <https://www.mobileodt.com/blog/human-trafficking-in-the-er-how-to-recognize-it/>
- Girl in Markets Slides: <https://www.npnow.com/nurse-practitioner-student-creates-screening-to-identify-human-trafficking-victims/>

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# Questions