

# 312

# **Wearable Anti-Sexual Assault Device**

Sponsored by Power Angel LLC

October 15, 2021

# Meet the Team

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- **Team Leader - Kathleen Kelly**
- **Head CPE - Kevin Martinez**
- **Head Developer - Scottie Jacobs**
- **Head Integration - Andrew McGlone**
- **Head EE - Charles Johansen**

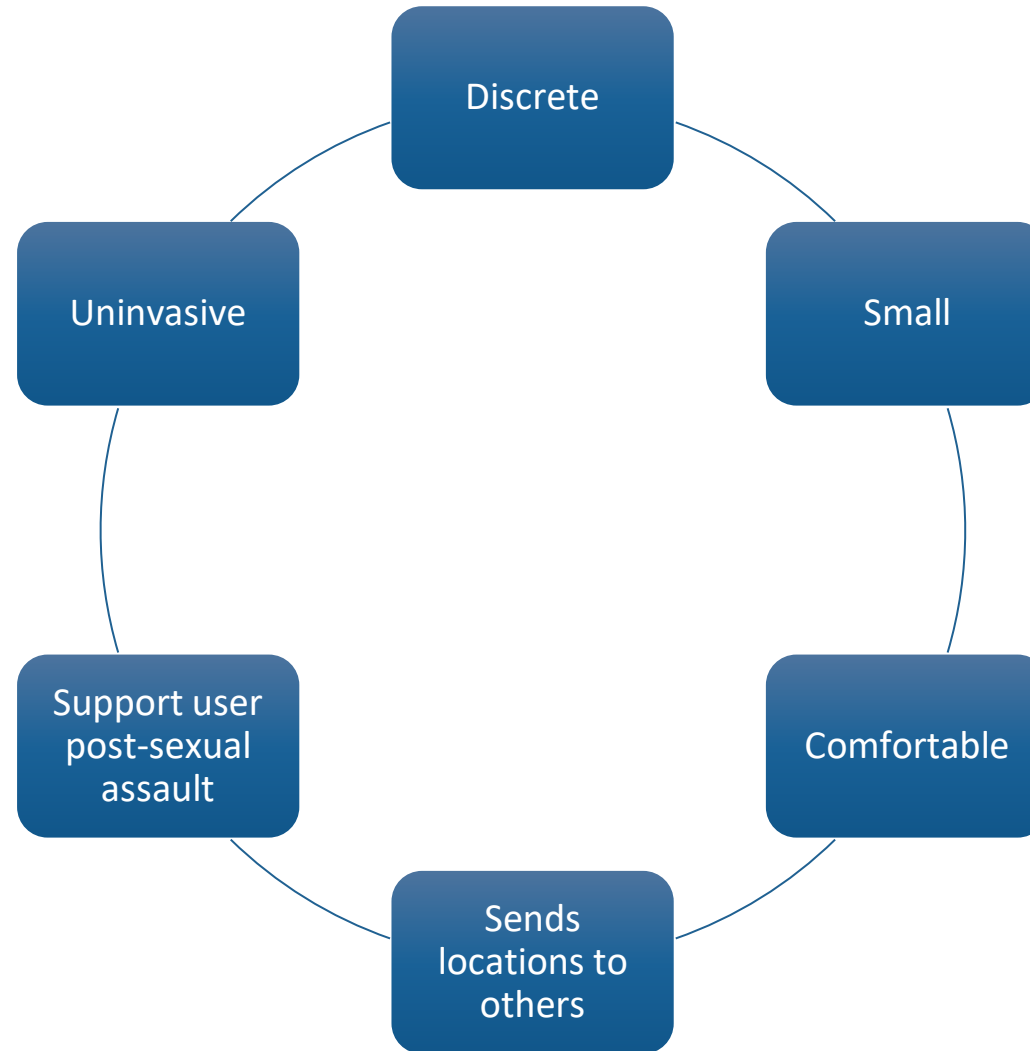
# Background

- 1 in 5 women in college is sexually assaulted during their time there.
- Every 68 seconds, an American is sexually assaulted.
- Only 25 out of every 1,000 perpetrators will end up in prison.
- Due to this fact, the world needs a device to build a case and protect victims, conscious or unconscious.

# Project Scope

1. Design and build a wearable sexual assault device to protect the victim when unconscious.
1. The device should communicate with a companion app to send the victim's location to their emergency contacts.
1. The device should prevent sexual assault, but if it cannot, it should assist in building a case against the assaulter.

# Customer Needs



Scottie Jacobs

# Customer Needs

Number	Need	Source
1	Wearable/Comfortable	Customer
2	Discrete/Non-Intrusive	Customer
3	Send/receive data or alerts to/from Smart Phone	Customer
4	Durable	Customer
5	Contact emergency authorities	Customer
6	Provide users help post-sexual assault	Customer
7	Follow the guidelines from FCC	FCC

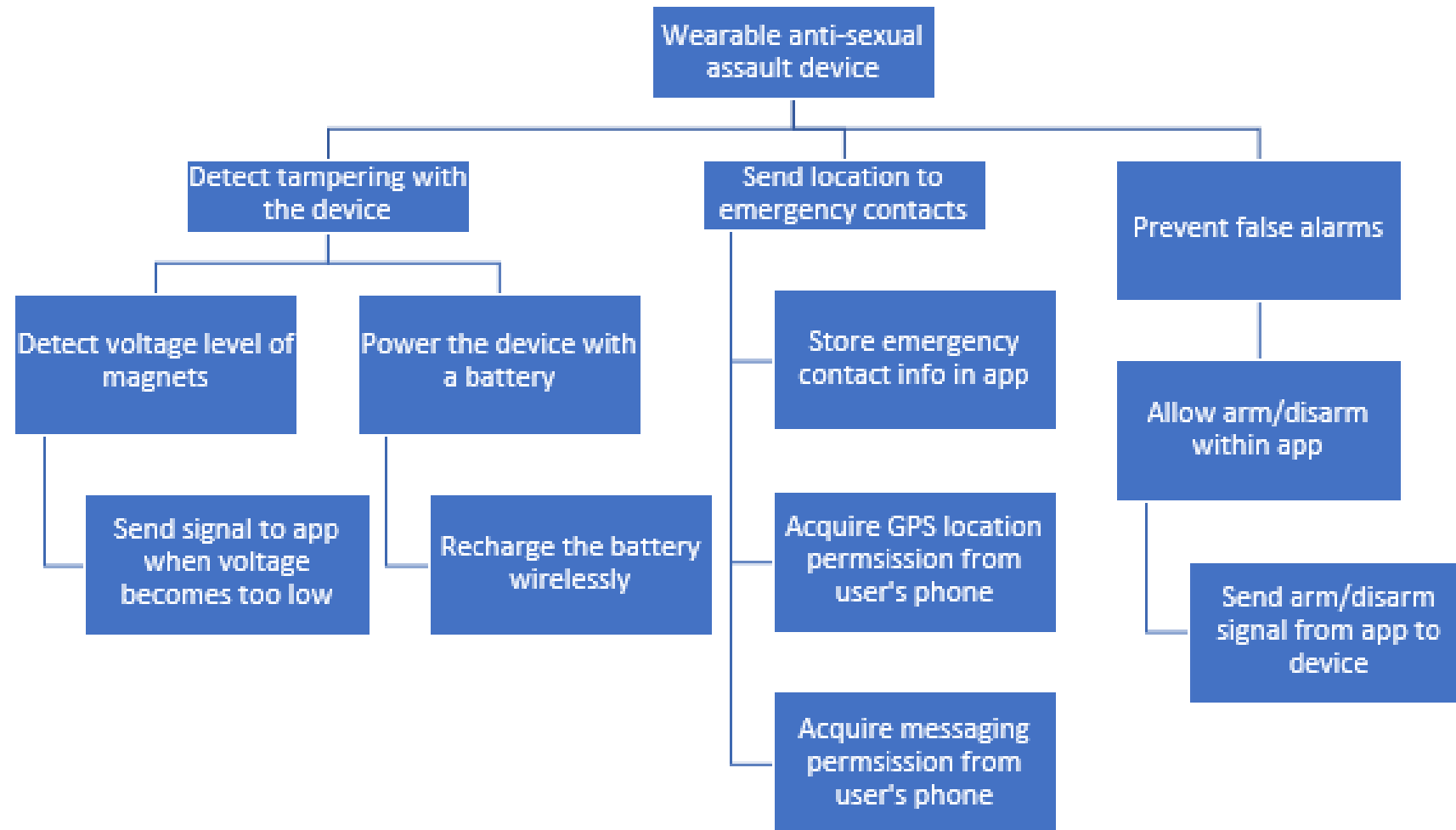
Scottie Jacobs

# Customer Needs

Num ber	Need	Source
1	1	Provide padding or smooth edges to the device so as to not scratch/poke the user.
2	2	Small enough to be hidden behind/under clothing.
3	3	Utilize Bluetooth technology to communicate to smartphone.
4	3	Develop an app to control the device and interpret the data received from device
5	4	Develop a way to keep device active during normal activities
6	5	Use smartphone to contact authorities if device is triggered
7	6	Include contact information of professional help/therapist
8	7	Use device and Smartphone in a manner not to cause unnecessary communication interference.

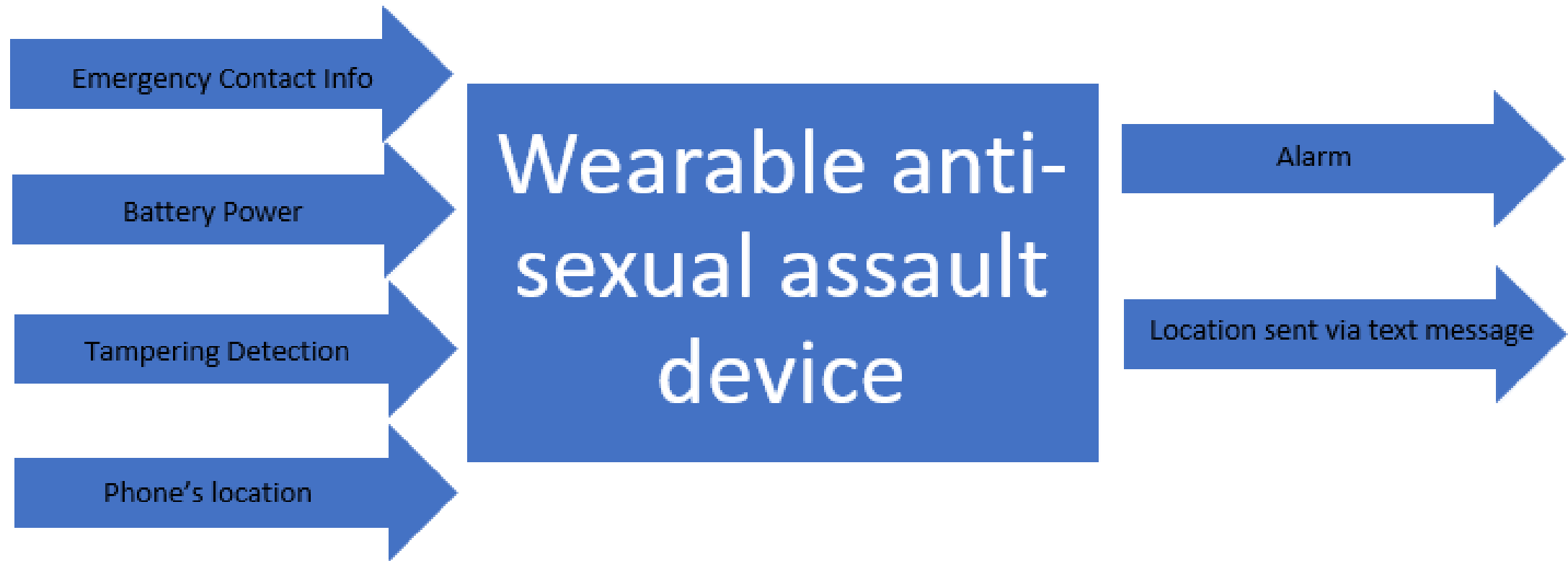
Scottie Jacobs

# Functional Decomposition



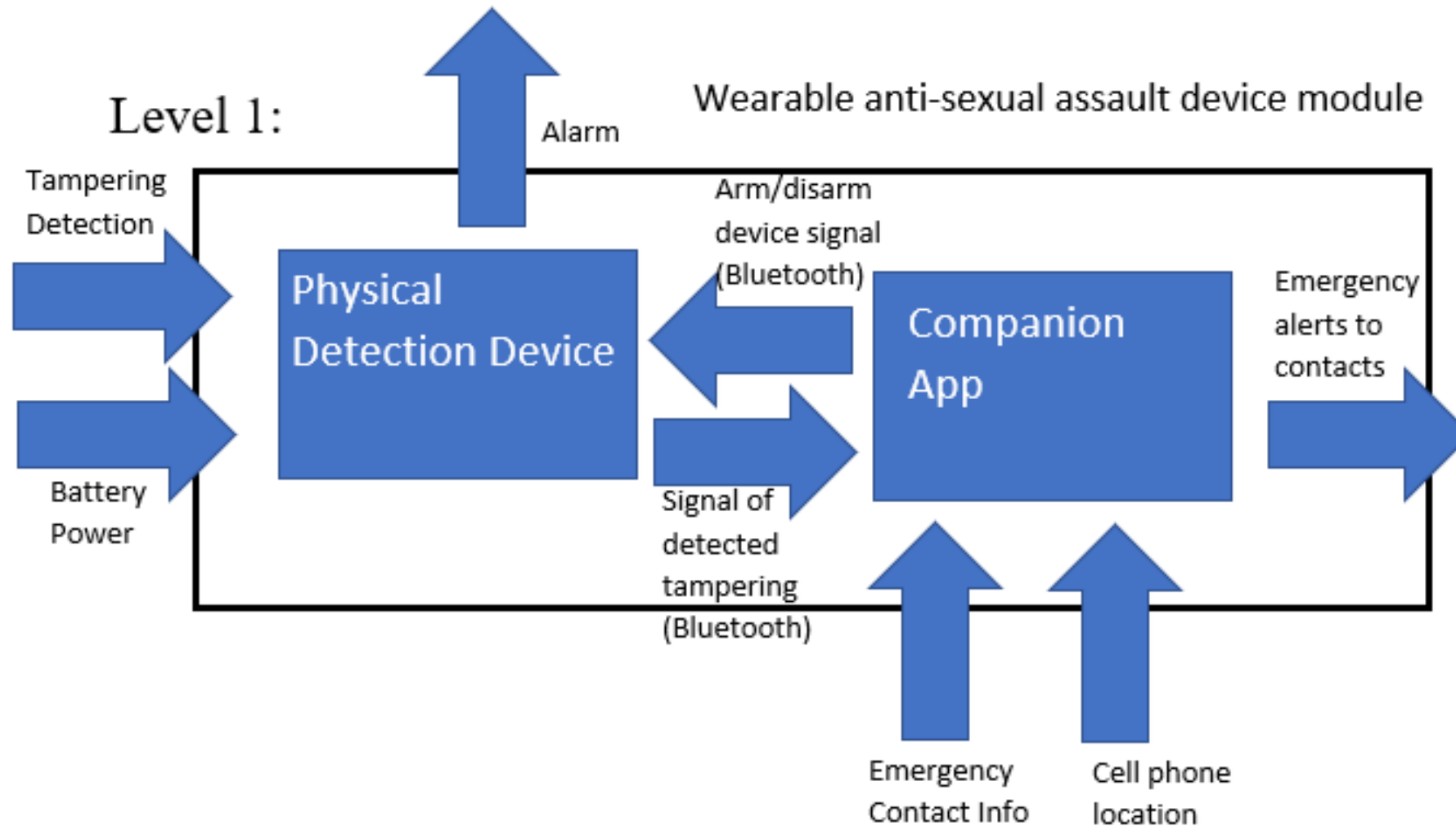


# Functional Decomposition Level 0



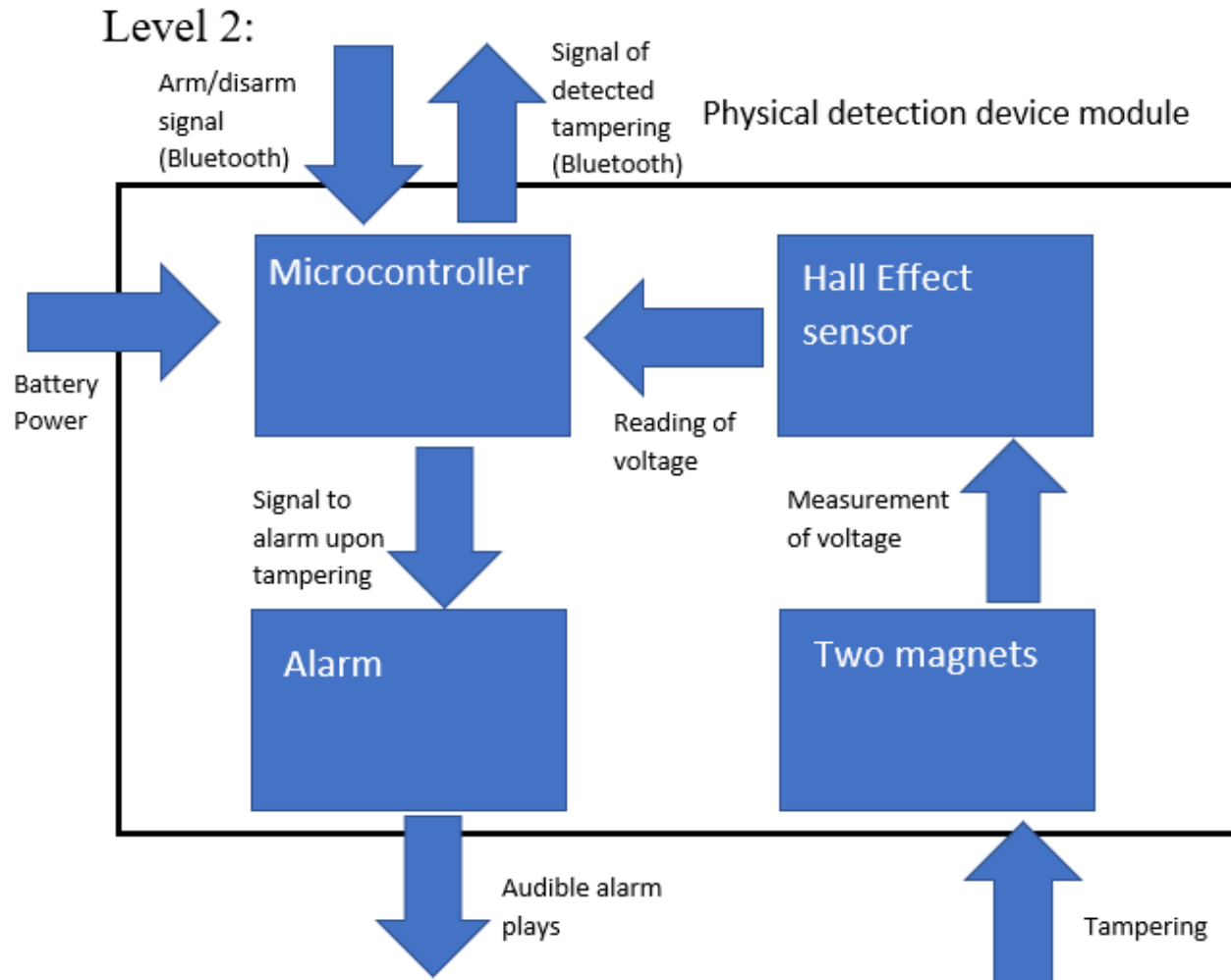
Andrew McGlone

# Functional Decomposition Level 1



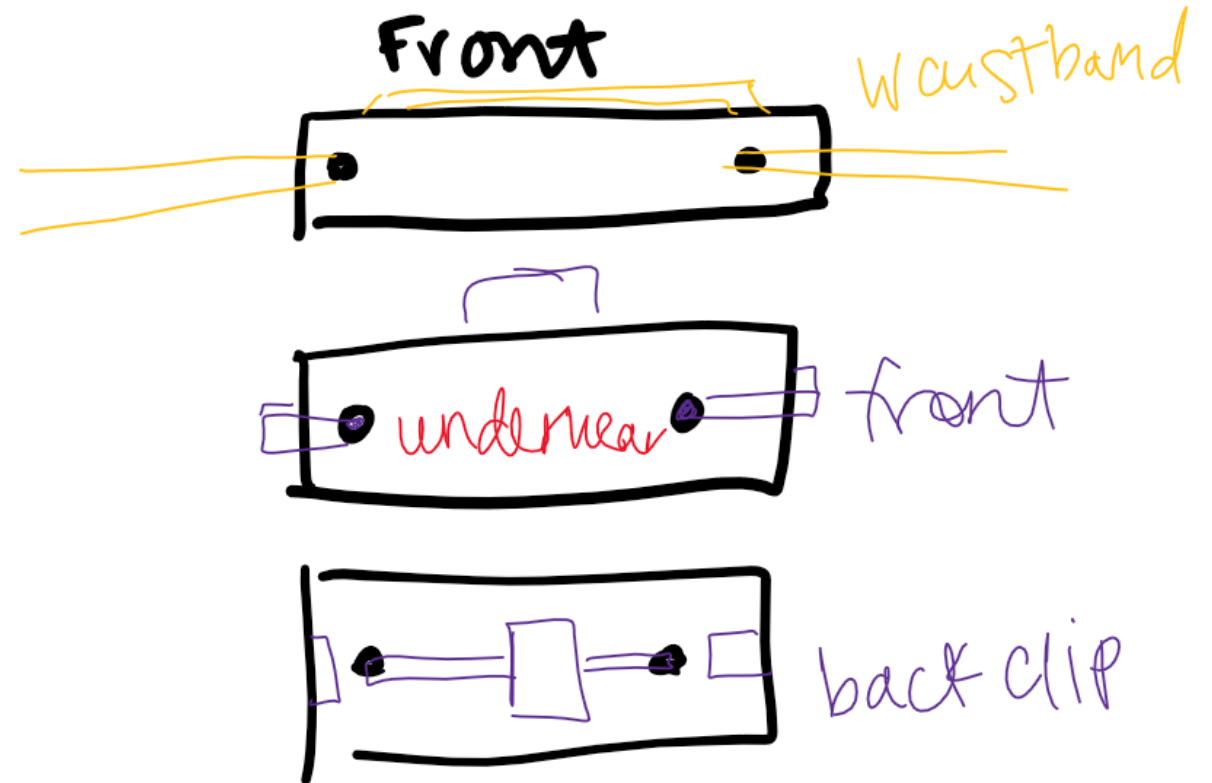
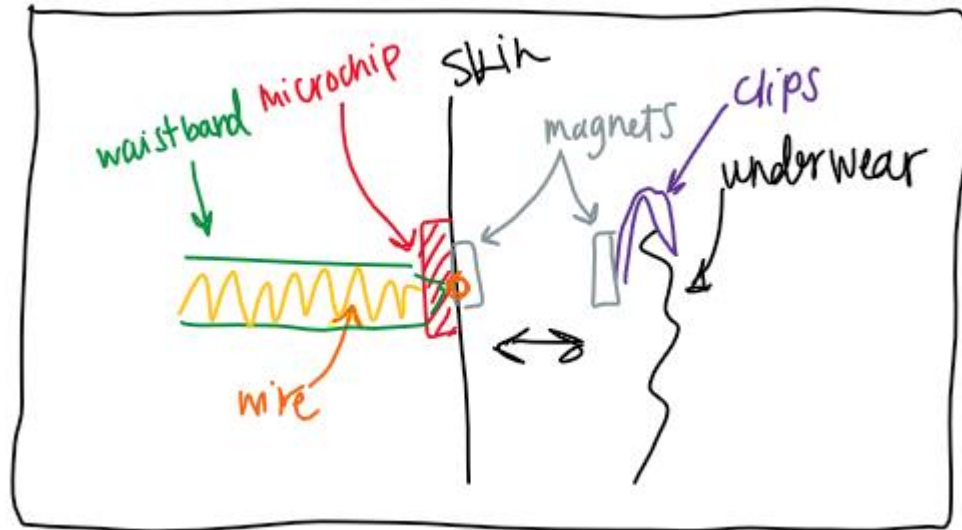
Andrew McGlone

# Functional Decomposition Level 2



Andrew McGlone

# Design



Kevin Martinez

# Five Most Important Points

1. Sexual assault is a prevalent issue on college campuses.
2. The current design is a pair of magnets and a wire within a waistband to detect if the device is tampered with.
3. This device is expected to prevent sexual assault, but it can be used to build a case if prevention is not possible.
4. The device plays an alarm and sends a signal to the user's phone upon tampering.
5. The companion app sends the user's location to emergency contacts when the device is triggered.

# References

- Muehlenhard, Charlene L et al. “Evaluating the One-in-Five Statistic: Women’s Risk of Sexual Assault While in College.” *The Journal of sex research* 54.4-5 (2017): 549–576. Web.
- “Statistics.” *RAINN*, <https://www.rainn.org/statistics>.

# Questions?