Patient Initiated Controlled Analgesic Recording Dispenser

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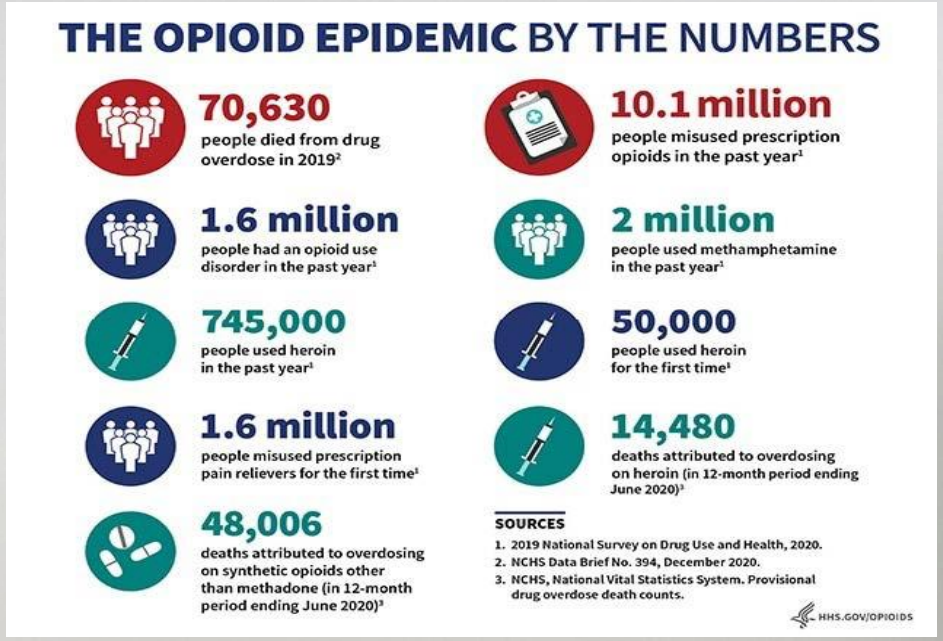
Laboratories of Prof. G.P. Li & Sergio Gago

Why is it a Crisis?

Addictive

Accessible

Lethal



- There are over 150 deaths from opioid overdoses every single day
- Prescription opioid misuse has been increasing by the year since the 1990's

What are the common problems of opioids?

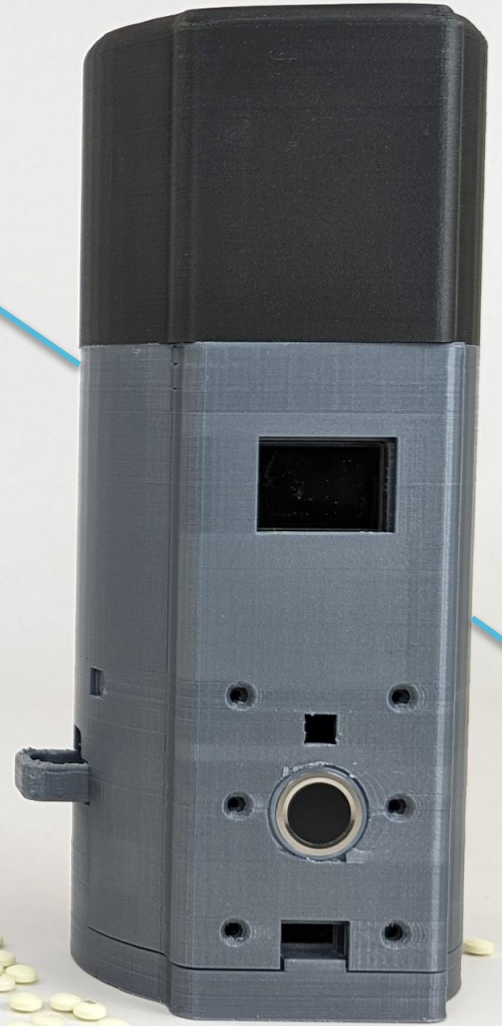
Over-Prescription of medication is common and oftentimes leaves patients with extra, this increases the risk for post op addiction in youth and elderly:

- **Children recovering from surgeries**
- **Athletes recovering from a sports injury**
- **Elders who suffer from chronic pain**

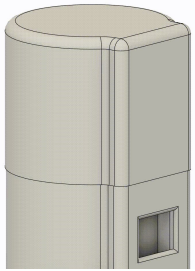
Our Solution:

The PICARD bottle, making sure its the:

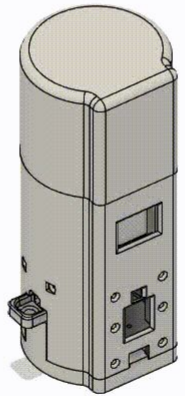
- Right Dose
- Right Patient
- Right Time

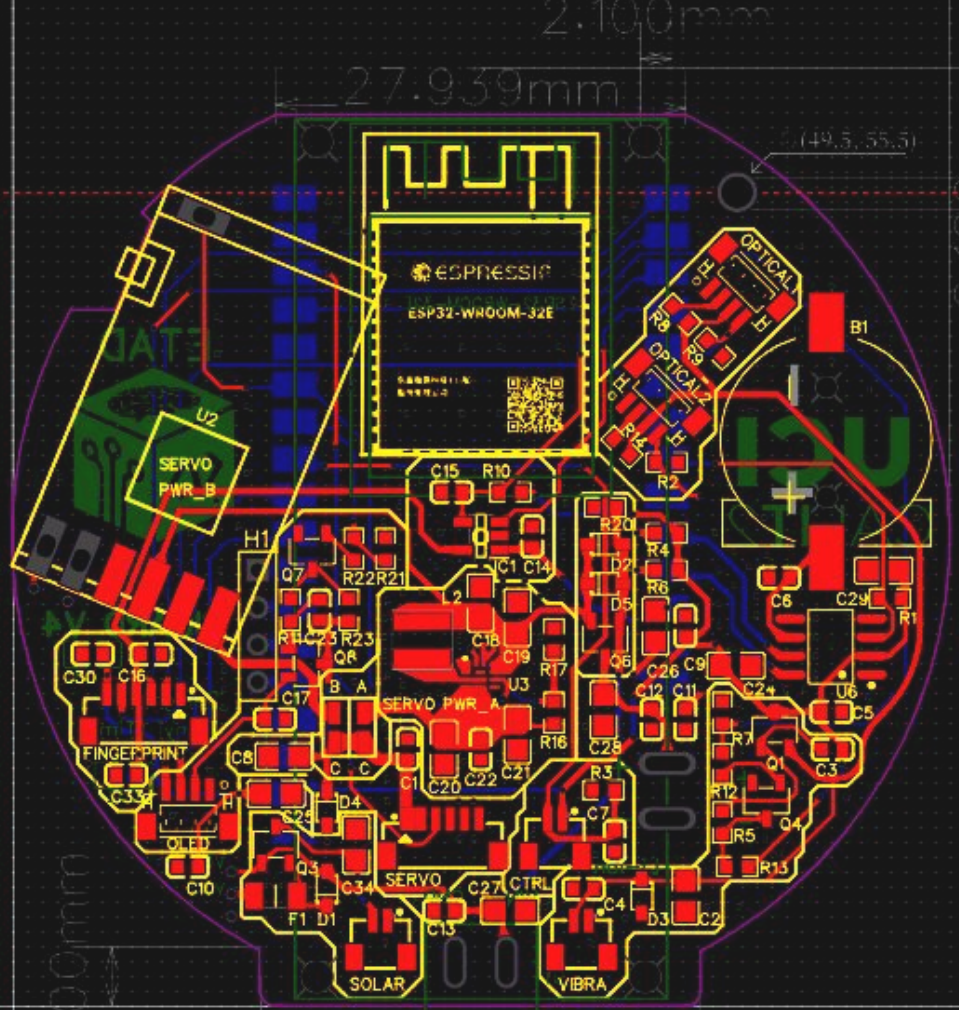


Mechanical Design



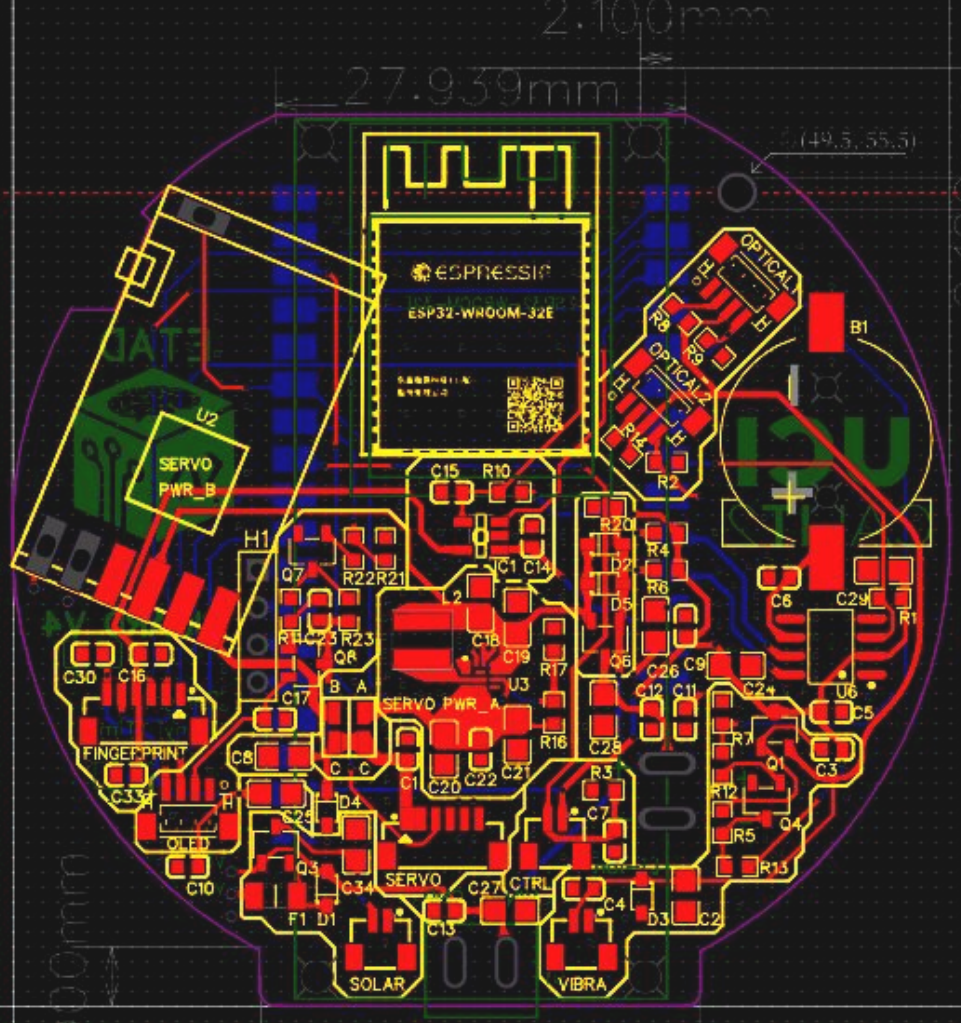
- 3D printed using PLA
- Helix propelled
- Vibration motor to help facilitate pills dispensing
- Looking into more efficient ways to pack the helix





Electronics

- Micro Control Unit
- 1800mAh Lipo Battery
- Real Time Clock
- Fingerprint Sensor
- Interface Button



Electronics

- OLED Display
- Servo Motor
- Servo Power
- Micro Photoelectric Sensor
- Vibration Motor

OLED Display

Fingerprint Sensor

Optical Sensors

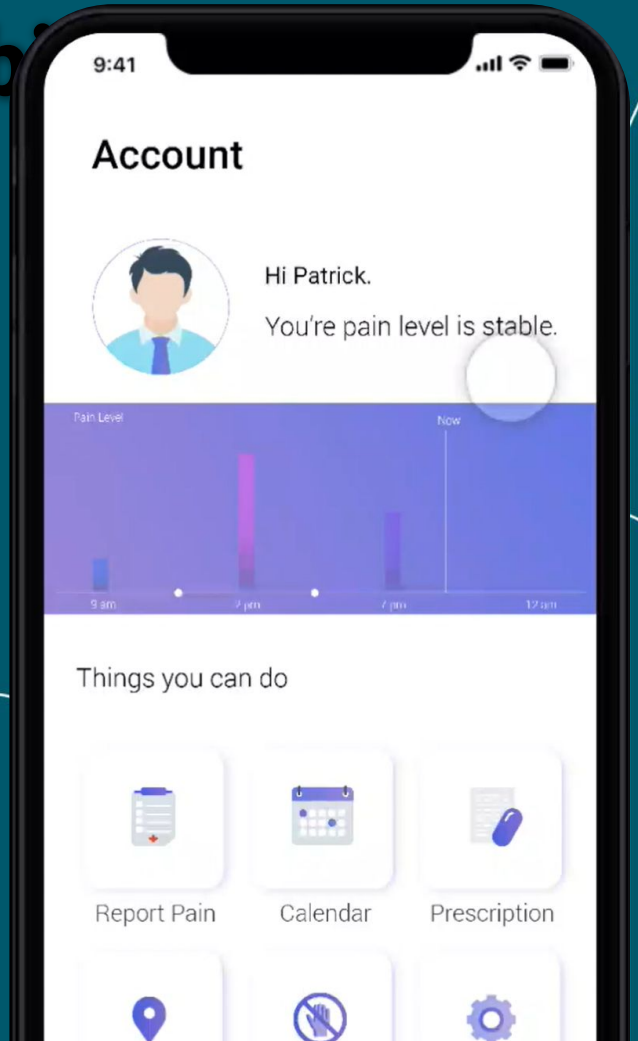
Battery

Servo Motor

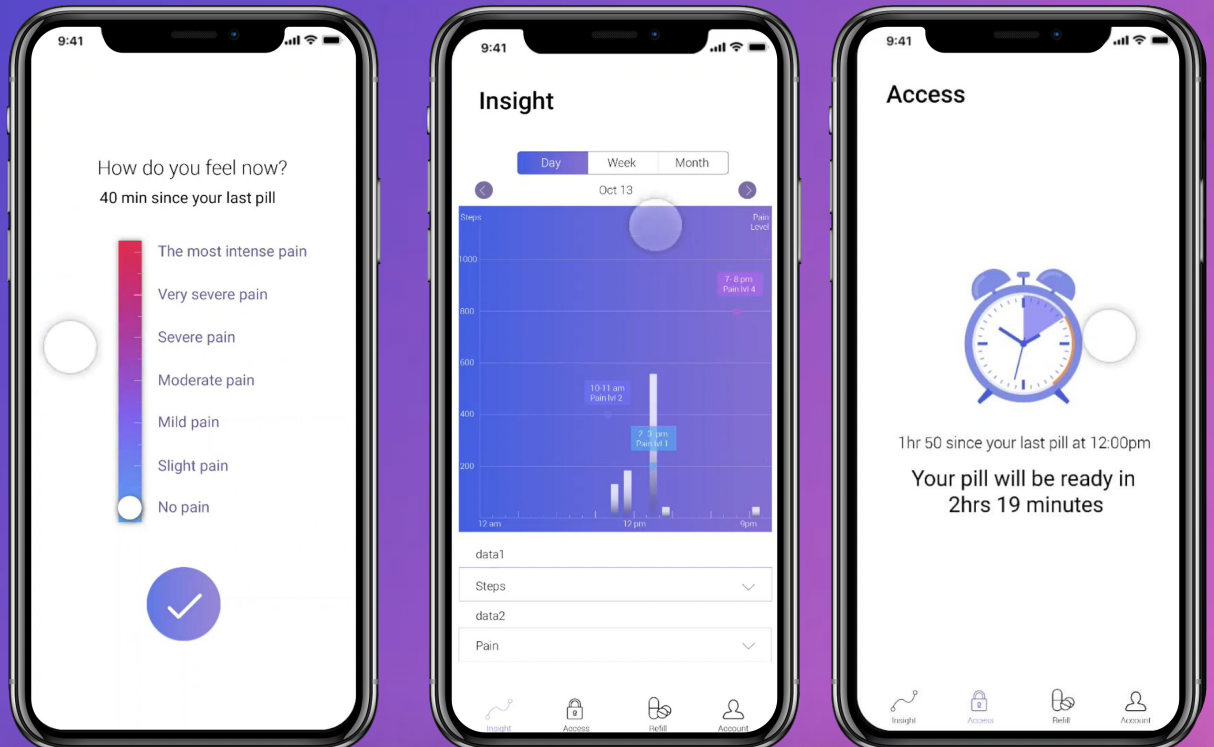
Vibration Motor

Button

PICARD Mobi
App



Pain Insights



- Patient will self-evaluate pain level before dosage
- Pain level data will be categorized for analysis from patient or doctor

Future Plans

- Address points of malfunction with assembly
- Reduce bottle size
- Mechanical Locking System for cap
- Design fail safe for any blunt force impact

Thank you to our current and some previous members!

Sergio Gago

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