

FINAL SUBMISSION: SMART PILL BOTTLE

# PROJ ECT 2

## RESEARCH & HMW STATEMENT

### Opioid Epidemic

- Medications for opioid use disorder (MOUD), such as methadone and buprenorphine, are effective strategies for treatment of opioid use disorder (OUD) and reducing overdose risk
- US pharmacists are not permitted to prescribe MOUD and are only currently allowed to dispense methadone for the treatment of pain, not OUD
- To date, buprenorphine products (including buprenorphine/naloxone) are the only opioid agonist treatments available to be dispensed—with a prescription from a valid, credentialed prescriber—in US community pharmacies.

### Drug Rehabilitation

- Provided a brief medication adherence intervention in collaboration with a telephone-based patient navigator to address prescription opioid misuse among community pharmacy patients
- Rates of OUD largely exceed rates of treatment capacity nationwide



**HOW MIGHT WE** develop an IoT enabled pill bottle that learns about user intake patterns to regulate consumption and to control substance abuse.

### Substance abuse treatment

- Collaborative practice agreements could include intake assessments and medication initiation, dispensation, monitoring, refills, and discontinuation
- Stigma regarding MOUD also likely plays a role.
- Strong evidence supporting the health benefits of MOUD cannot be subordinated to stigma or inaccurate assessments of security, cost, and feasibility






### Addiction Prevention

- Treatment for opioid use disorder involving opioid-based pharmacotherapies is considered most effective when accompanied by psychosocial interventions
- Need and desire to establish a peer recovery group that recognizes persons on medication as being in recovery and destigmatizes use of medication to treat opioid addiction

## USER PERSONA



### About me

-  Brandi Waters
-  New York
-  Single
-  Drug User
-  On federal assistance

### Behaviors

- Anxious
- Outgoing
- Driven
- Loyal

### Goals & Objectives

- Regulation and accountability for substance consumption
- Learn healthy coping mechanisms to address anxiety and depression
- Finish school so she can work or attend college

### Bio

Brandi is a young woman who attends the local high school. Lately, she's been battling feelings of anxiety and depression and has withdrawn from her family and friends. Out of concern, her parents encourage her to seek out treatment.

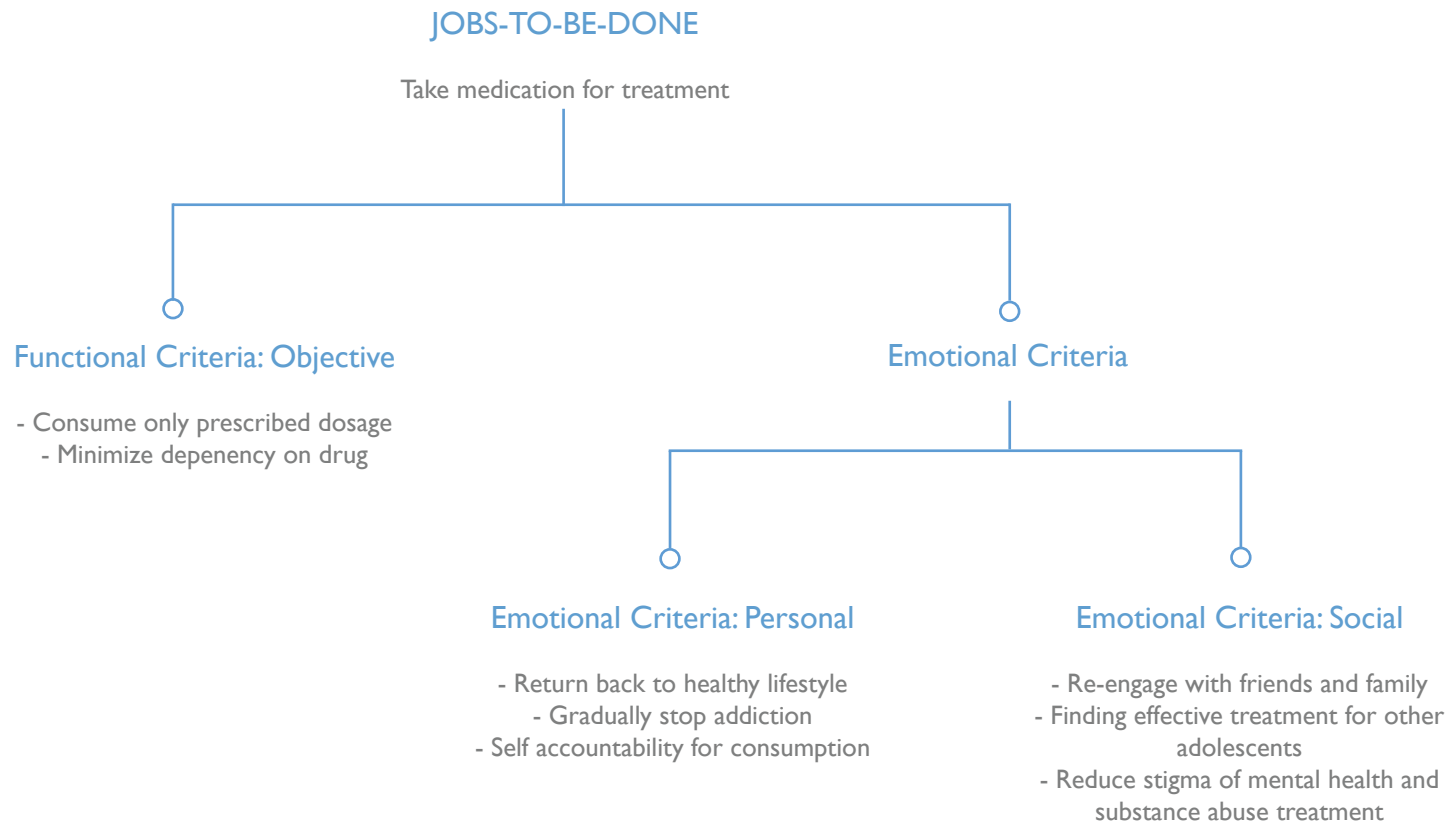
Her family receives federal financial assistance and is covered through Medicaid. Doctors have prescribed her opioids as an affordable treatment option.

Brandi has started using the drug casually and often consumes more than her prescribed dosage. Her grades have significantly dropped, and now she worries she may not finish school.

### Pain Points

- Easy accessibility to the drug
- Dependence on drug to cope with symptoms of anxiety and depression
- Effective treatment uses pills; worries of substance abuse

## JOB-TO-BE-DONE FRAMEWORK



## IDEA FILTER CREATIVE MATRIX

### USES AI

Track user patterns and control dispenser to regulate consumption (alerts medical team for abuse)

Connected to doctor. Captures input for consumption. Patients can send prescription data to doctor, family, friends for accountability

Upload suggested time of consumption. Pill cap unlocks only at this time and tracks any missed days

### USES ML

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### JTBD

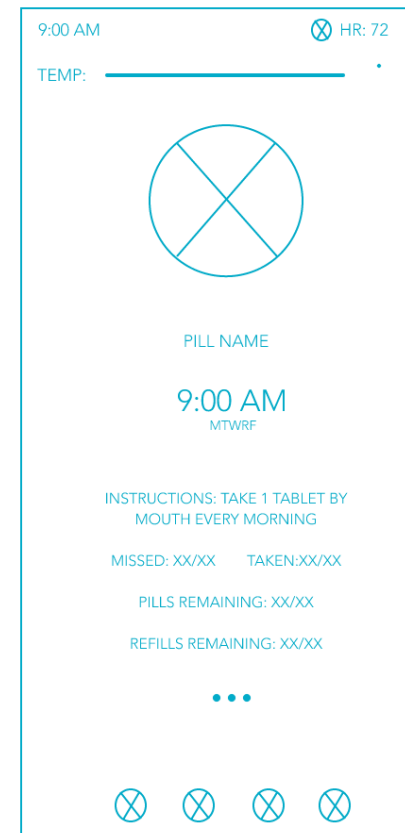
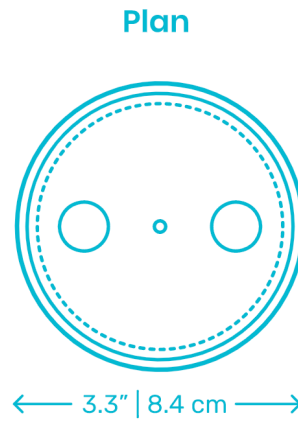
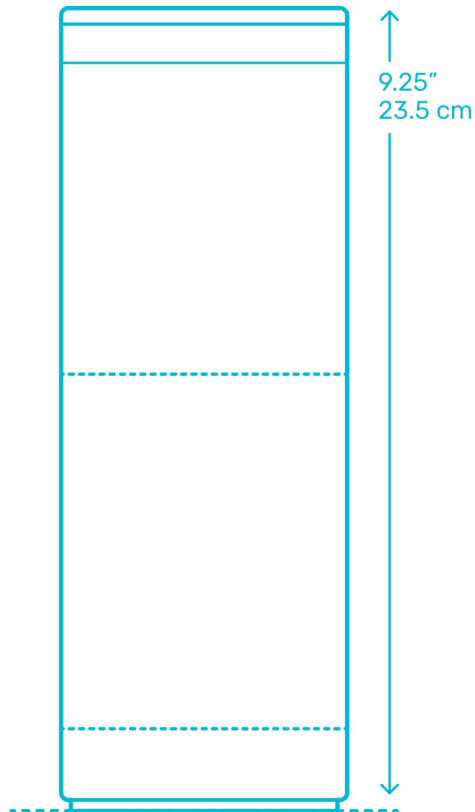
Control and adjust prescription based on user tracking patterns; alert medical team if tampered or more than regular dosage is consumed

Patients can be held accountable by medical professional facility, doctor, family, and friends

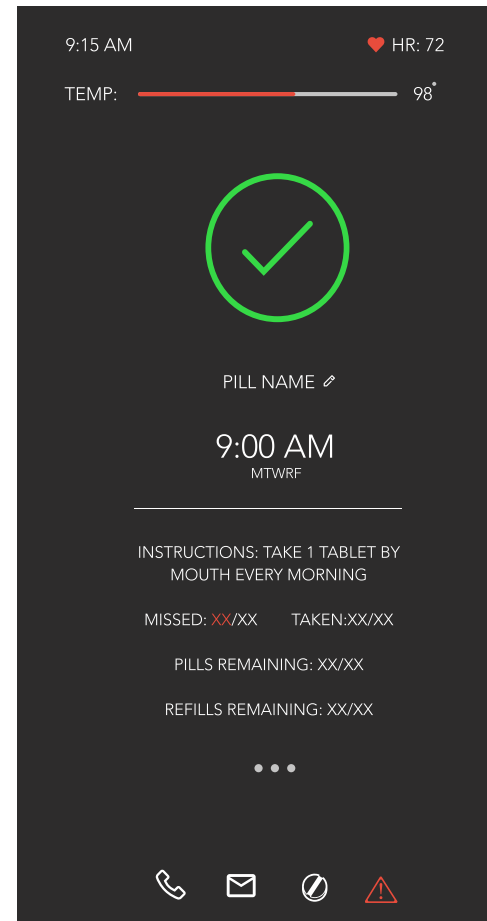
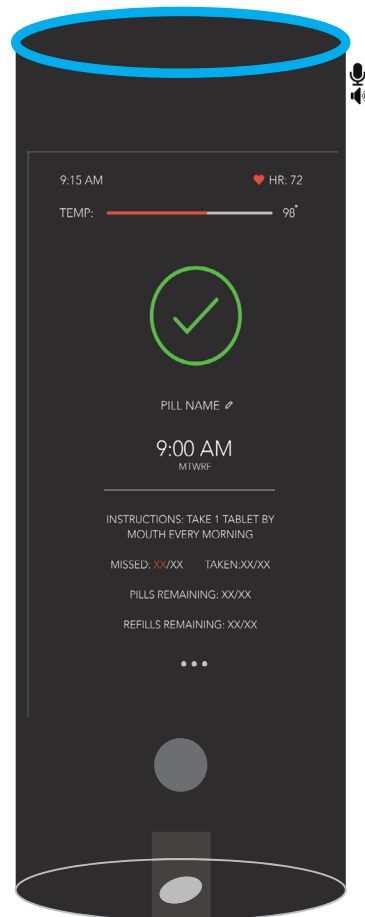
### HMW

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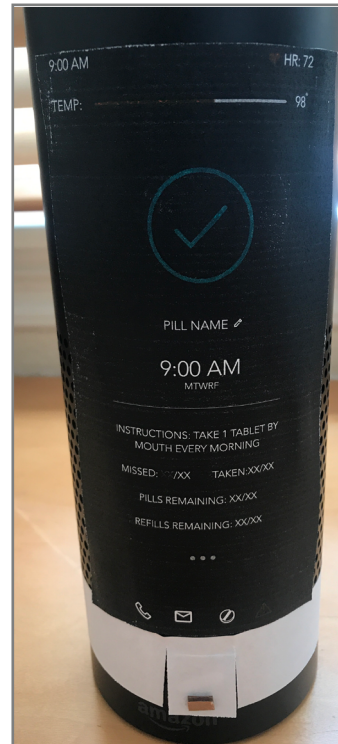
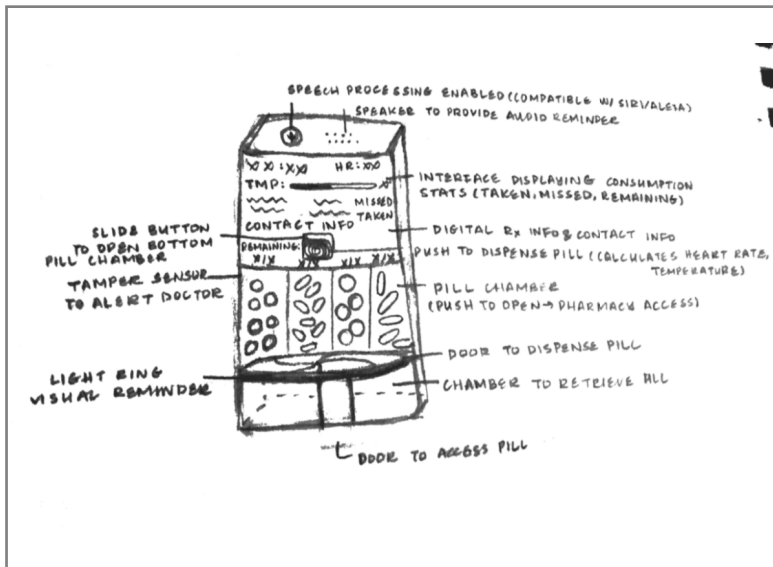
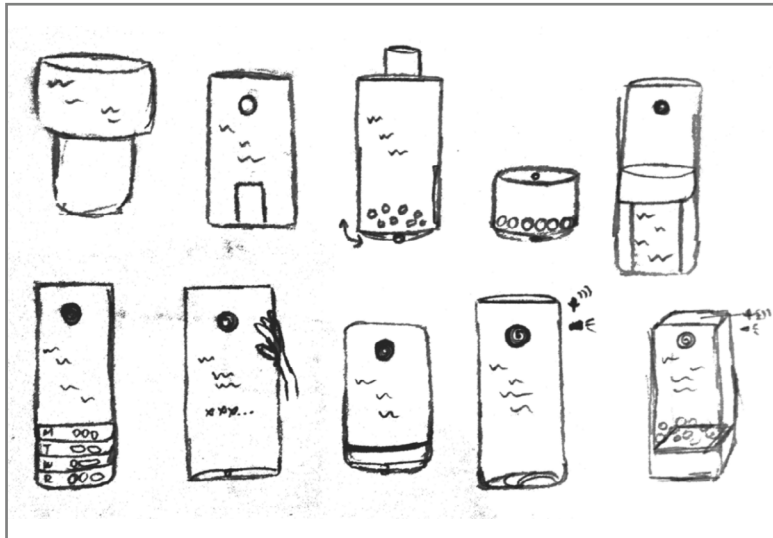
## PRODUCT WIREFRAMES



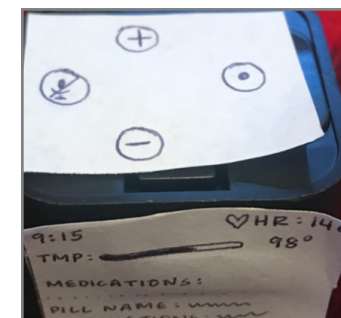
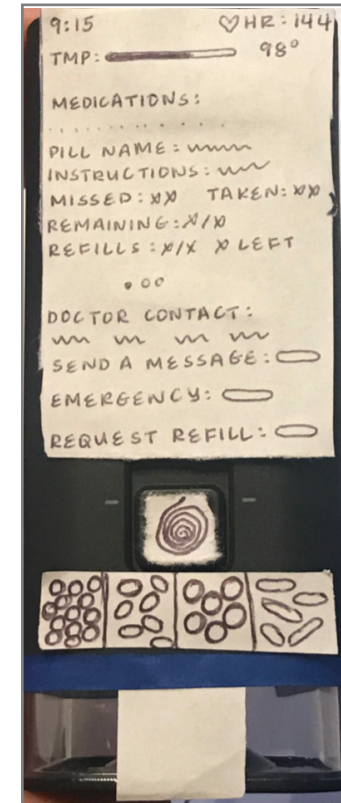
## PRODUCT & UI DESIGN



## PRODUCT IDEATION: SKETCHES + ROUGH & READY PROTOTYPES

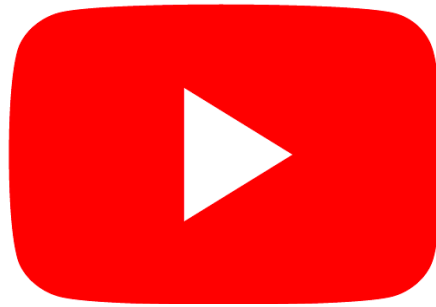


Iterative Rough and Ready Prototypes shown. Above is the final rough and ready prototype. To the right, you'll see the first iteration of the product design





WIZARD OF OZ VIDEO



CLICK ME

VIDEO LINK <https://www.youtube.com/watch?v=CiYMMbw72VE>