CORNERSTONE 2

GE1502 - ENGINEERING PROJECT

MILESTONE 1

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DEFINING THE CHALLENGE

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PROBLEM STATEMENT

Create a device that reliably distributes, organizes, and tracks medicine for patients & caretakers.

BACKGROUND

- Caretakers in retirement homes struggle to ensure elderly patients take their prescribed medications consistently
- Elderly individuals who frequently forget important daily tasks, such as taking pills. This is supported by data showing nearly 40% of people over 65 experience some form of memory loss
- Most current solutions only show prelabeled compartments for the pills

DESIGN PRINCIPLES

Managing dosages and organizing medication is often time consuming for many and physically challenging for some as well.

Our goal is to address the challenges of managing prescription pills that need to be taken throughout the day and make medicine more accessible by simplifying and automating the organizational and distributional process.

Our project for a smart, electronically-controlled pill box/dispenser will seek to satisfy this niche.

DESIGN PRINCIPLES

- Remind the user with accessible notifiers & alarms
- Minimalistic, simple and universal design
- Easy to use interface & Software integration

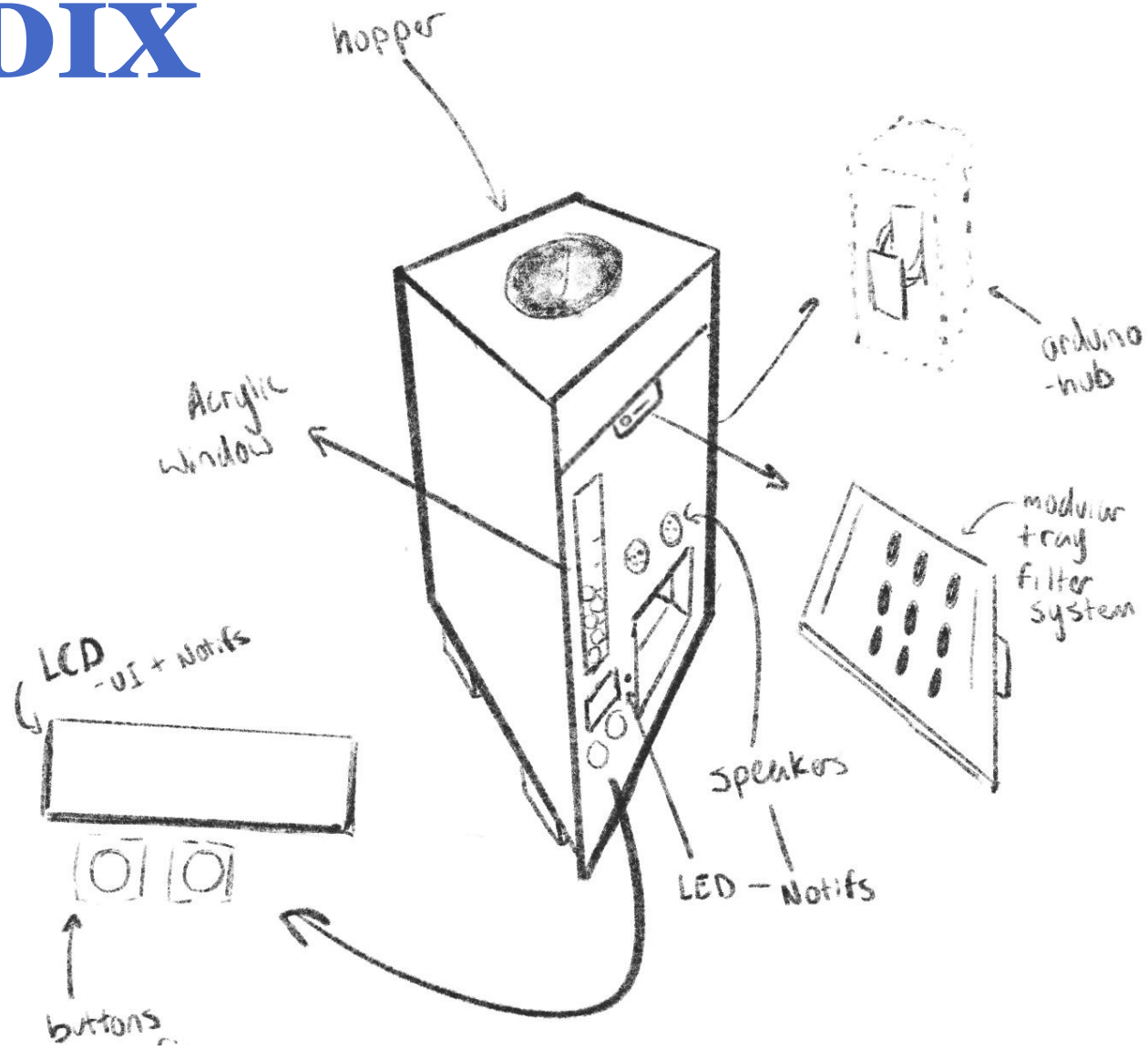
DESIGN SUMMARY

- Compact box with programmable dosages using buttons and an LCD display.
- Blinking LED and speaker output to notify a patient to take their pills.
- Automatically reloading and sorting hoppers for pill refills
- Use of SparkFun Kit and additional Arduino resources to implement smart capabilities to the system

OVERVIEW AND PLANNING

- Prototyping will focus on perfecting the intake and outtake methods, as well as modularity in the design to account for different pill sizes
- Most of the housing will be 3d printed, with laser cut acrylic panels on one side to show capacity/amount of pills remaining
- Software integration via a Bluetooth module and the use of Android APK gives further smart features and accessibility to the device
- The most difficult aspect will be ensuring a consistent dispenser mechanism without jams or compromising the dosage or modularity.

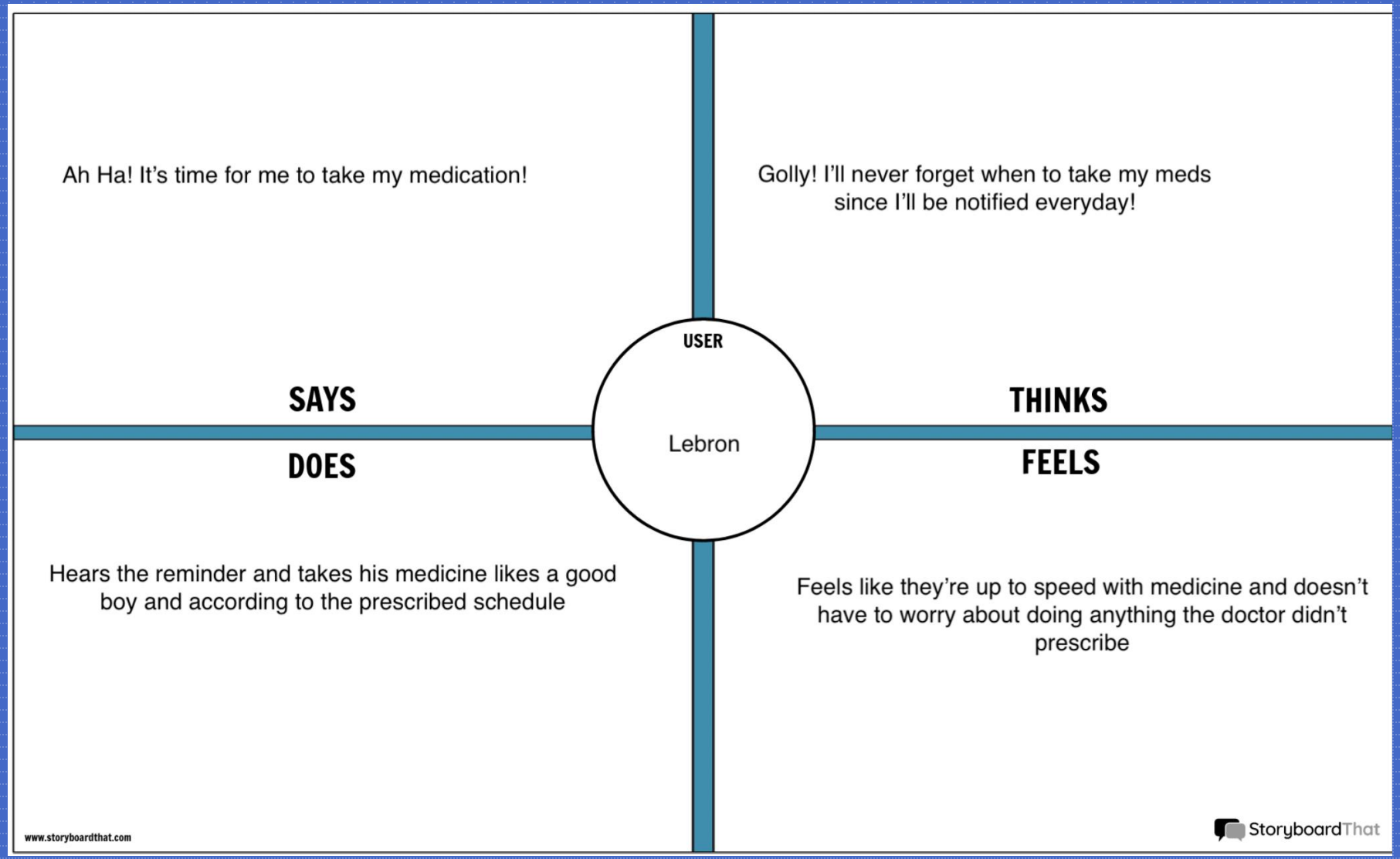
APPENDIX


hopper
arduino -hub
Acrylic window
modular tray filter system
LCD - UI + Notifs
speakers
LED - Notifs
buttons

APPENDIX (cont.)

Task Name	January	February	March	April
Research	X			
Planning	X	X		
Design/Build		X	X	
Gather Material		X	X	
Build			X	X
Implementation				X

APPENDIX (cont.)



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