



Laundry Room Recon

Software Requirements Specification

Overall Description



System Scope

System is made up of **TWO** separate components



Laundry Hardware: Accelerometer, door sensor, and Raspberry Pi attached to both laundry machines.



User Software: Android/iOS application used to check laundry status and set roommate schedule.

TIME CONSTRAINT:

Core functionality must be completed in one semester, additional features can be added afterwards

Product Functions

- Creating a Laundry ID group on first set-up.
- Joining a group with a Laundry ID
- Sending **notification** when laundry starts/finishes
- Allows a user from within the group to claim their laundry.
- **Notify** user if the washer/dryer door has been **tampered with**.

Design Constraints

- Reliable Wireless Signal - Raspberry Pi & App
- Accelerometer must be properly calibrated
- Appliances must have ample clearance to prevent false sensor readings
- Hardware must not come in contact with any liquids or be subject to undue pressure



Specific Requirements

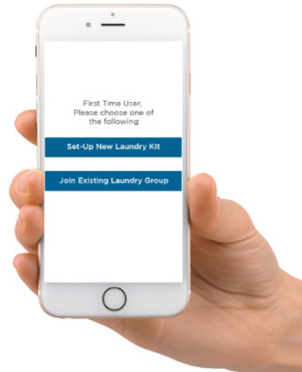


Stimulus 1: User Launches Application

This Stimulus has **TWO** main use cases:



If the User has already previously set-up or joined a Laundry Kit Group:
Open Main Menu (Laundry Status)



New Users who have never set-up or joined a Laundry Kit Group:
Open First-Time Setup Menu



If this is a new User they have to **CHOOSE** to either:

Set-Up a New Laundry Kit:

The app will instruct you on how to set-up and connect a new kit.

OR

Join Existing Laundry Group:

Enter the unique ID of an already set-up laundry kit to join the group.

Stimulus 2: Set-Up New Laundry Kit

The app will show the Users instructions on how to attach all the required hardware to the machines:

- Washer and Dryer accelerometers (1 each)
- Washer and Dryer magnetic door sensors (1 each)
- Raspberry Pi with Wifi Antenna

Once complete, the User will then be prompted to type the MAC address of the Raspberry Pi into the App.

This will create a new unique Laundry ID number and associate it with that user's User ID. This number can be used by new Users to join the same Laundry ID group.

Stimulus 3: Join Existing Laundry ID Group

A user can join an existing Laundry ID Group if they have:

- A unique Laundry ID number
- Not already joined another group

The user will be prompted to enter in a unique Laundry ID number.

If the number exists then the system will associate that Laundry ID with that user's User ID.

The User can now receive notifications, start laundry, and edit the schedule.

Stimulus 4: Scheduling a Laundry Time

The User will be displayed a short **schedule** which visually shows any time blocks that have been reserved and by what **User ID**.

To schedule a new time the user must tap on an open time slot.

The user will then specify the date and time block and then confirm.

The user will now receive **notifications** when his slot arrives and other users will be **warned** if they try to use the machines.



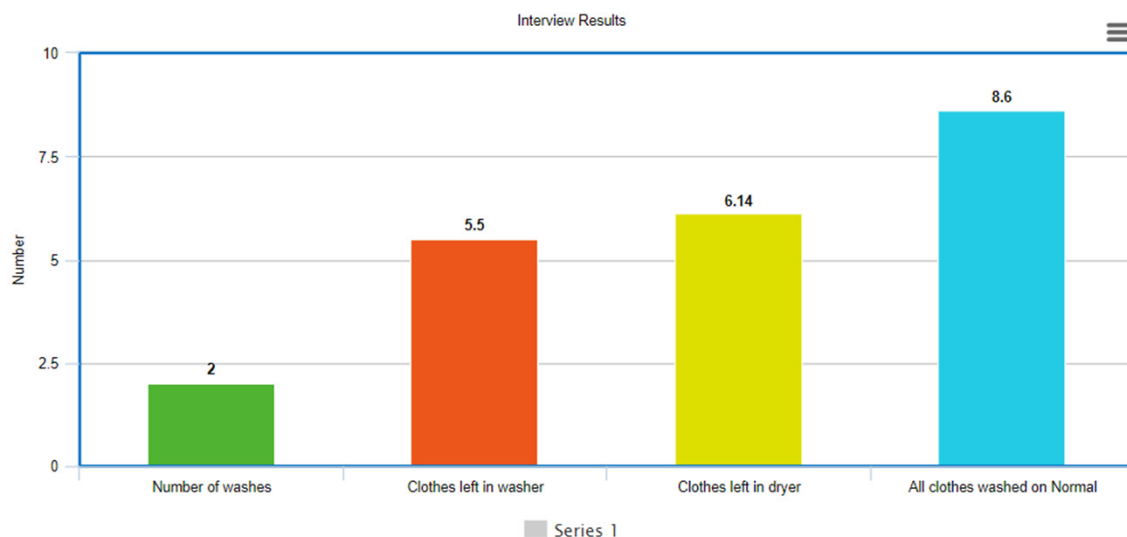
Additional Requirements

- User will be **notified** when their washer/dryer load is **completed**.
- Using **door sensor**, User will be **notified** if their their current washer/dryer load is being tampered with.
- Users will use the app to enter additional info to start a laundry load and claim it as belonging to their **User ID**.
- If a **machine** is started without specifying a **User ID** all Users associated with that **Laundry ID** will receive a **notification** requesting someone to claim it.

Interview Questions

Question	Yes	No	Sometimes
Does it bother you if clothes are forgotten in washer or dryer?	7	0	0
Does your washing machine/dryer "beep"?	7	0	0
If so, do you always hear the beeps from each area in your home?	0	4	3
Does your roommates take out your clothes from the dryer/washer?	3	2	1
Does this cause issues between you and your roommates due to this?	3	3	1

Interview Results



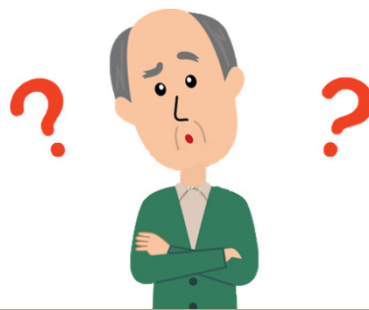
Quotes

"Adding a chore schedule with **reminders** and a calendar"

"Show which **roommate** is using the washer and dryer"

"Maybe have a section where you and your **roommates** can create a list of who has washer/dryer next."

"Adding different sound **notifications** would help to distinguish the washer and dryer"



Questions?