Idea Write-Up (by Monday)

*Each team member’s name*

Christian C., Richard X., Vanessa Q.

*Brainstorm: A list of at least 20 numbered ideas (aim for more) that you came up with during your brainstorming session. Each idea has to be described in one full sentence (don't just list an abstract title like Smart thermometer - better: Food thermometers that can be clipped on to cooking pots that wirelessly transmit temperature readings to a Smartphone, where users can set alarms when target temperatures are reached." You should have been visual during your brainstorm - include photos of sketches (but also describe in text).*

*Idea Selection: The idea your group chose to work on and a short explanation of why the group picked it from amongst all the possibilities in your list. (one short paragraph - Note: this idea may develop and change later; it's your best idea at this time).*

We chose to work on what is at minimum an automatic pill dispenser. The dispenser includes the added component of an alarm system, capable of dispensing from bulk containers the appropriate dosage and reminding the user to take his/her medicine at select times. The reminder can contain the default voice or can playback a recorded reminder. The dispenser has an accompanying app that an invested individual, such as a daughter, son, friend, or spouse, can link to the dispenser to receive notifications when the user has not eaten the dispensed meds. In addition, the app would feature a DATA tab that tracks when the user takes and does not take the dispensed meds.

A shared goal among the team members is to work on a device that presents intellectual challenges and opportunities for growth, as well as contributes to the quality of life of a group of people. With this goal in mind, we chose this dispenser because it would directly help seniors who frequent hospitals primarily because of missed dosages and who wish to live independently despite a complicated medicine schedule.

*A Project Description:*

*Target User Group: Your target user group should be sensible (people you have access to) and not trivial (targeting CS/EE/ME students is not a challenge). Describe the user group in enough detail that you can easily separate the group from other types of people. Then include details about their needs and wants. (one paragraph)*

The target user group is comprised broadly of individuals who are subject to a strict medicine regimen, be they seniors or students. This medicine regimen should entail having to take 4 or more types of pills daily and having to take these pills on a schedule. Existing pill dispensers require the user to pre-allocate pills into a week or month’s daily doses which is prone to human error and takes time and effort. And in addition to investing that effort, forgetting to take a day’s dosage is not uncommon.

*Problem Description & Context The problem description should be short and specific about the high-level goals of the project. The problem should be described in terms of user activities and situations where the problem occurs, and what aspects of the situation might be improved with a technical solution. Think about location, time, environmental factors etc. Then think about aspects of the user group, their education, available time, motivation, values etc. What related or complementary solutions exist already? (one paragraph)*

The problem is that for seniors taking medicine can be difficult particularly when the medicine schedule is complex and multiple types of pills are involved. For example, in the morning especially a grandma might forget to take calcium supplements either because it was recently added to her collection of pills or because she did not put the pill bottle on the table that features her other pills. She only remembers to take them when she notices the bottle on the other table a couple hours later. Because vitamin supplements are as significant, this occasional forgetfulness is insignificant. But if a time-sensitive cholesterol pill or a blood-thinning pill took the place of that calcium pill, then the stakes are higher. And if that grandma lives alone or with her equally as elderly spouse, then there is nobody and nothing, save a spontaneous call from her son, to remind her to take her medicine.

There exist automatic pill dispensers with an alarm system; however, they come with a cost, e.g. Philips sells one for $60 a month. These dispensers require the user to distribute a week to a month’s worth of pills into appropriate dosages. Some, like the Philips one, also have a phone notification system.

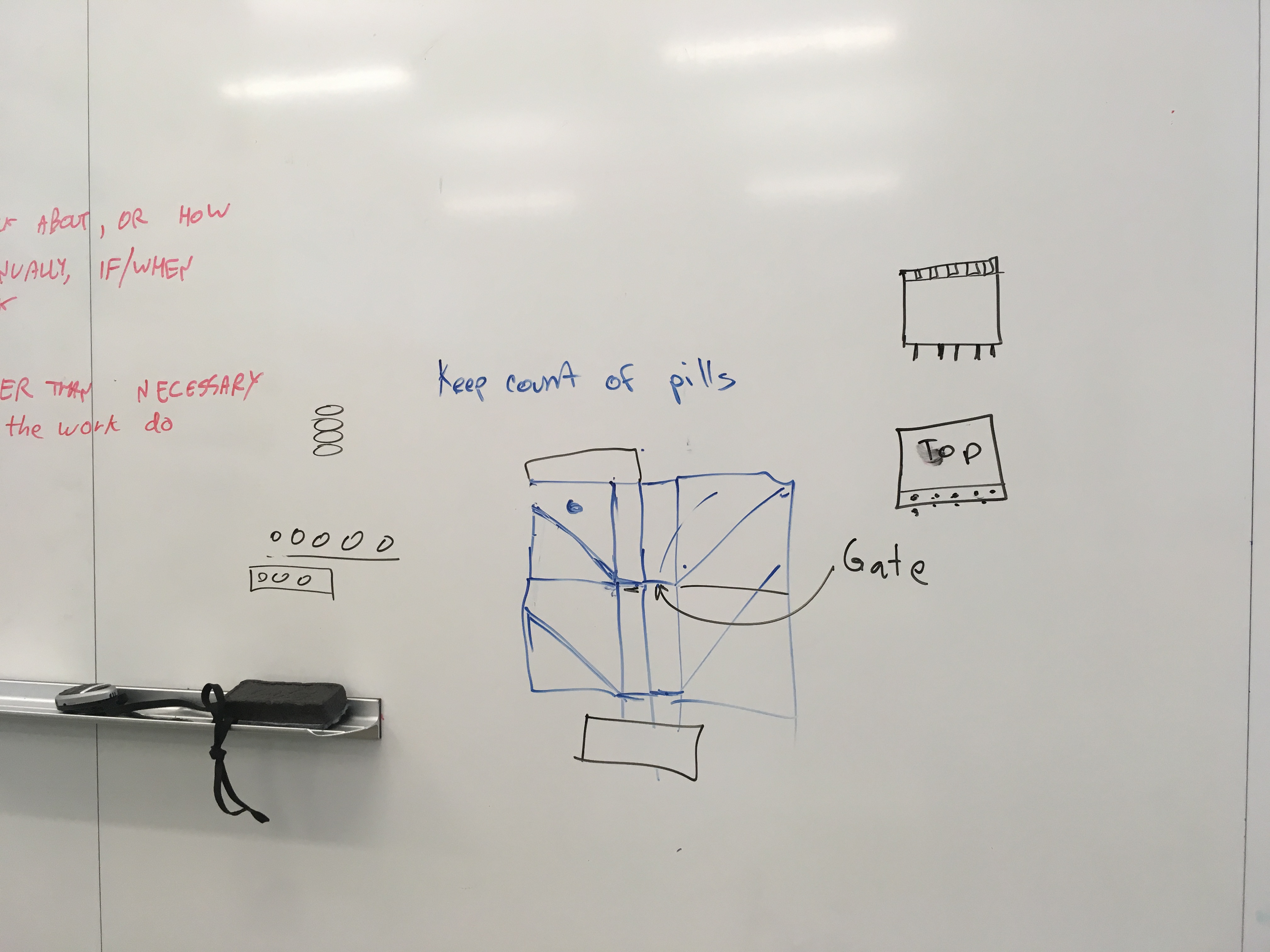
*Why is a new interactive device a good solution for the problem? (one paragraph)*

First, if we can build a dispenser that is less expensive than existing solutions, then we increase the accessibility of such devices. Second, the ideated device would mechanically allocate preset daily doses from pill containers, thereby removing human error from the equation and decreasing overdosing and under-dosing. Third, we would provide for friends and family and the user, as well as the doctor with hard data regarding the user’s medicine-intake track record.

*What are open technical questions you'll need to answer to determine feasibility?*

The foremost question is how we can accurately dispense pills, i.e. if the preset dose calls for a single pill of type A, then is the device able to dispense that single pill? Preventing overdosing and under-dosing and general usage are contingent upon the accurate dispensation. The next question regards the “chute-system” or allocation system in the containers that hold the pills. We want the user to be able to add to the base of 4 containers while still retaining the capability of dispensing pills from those added containers. Is stacking of containers possible?

*Be sure to include sketches in your description of the project. Diagrams and figures will help you reduce the number of words you need to write and are likely to make your description clearer.*

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