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Project Proposal
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1. Problem/Idea

With ever-growing schedules demanding increasingly organized lifestyles, it's easy to forget something: pen, cell phone, wallet. This is further compounded by varying schedules, with different days requiring different items. For many people, a system to quickly check what is they have as they leave the house could solve this problem.

2. Analysis of Problem

Personally, I have a rather busy schedule, so once I leave the house, I'm gone for the day and I have to have everything I need that day with me. To make this task harder, I have a different schedule every day, with different needs. For example, my Monday and Wednesday lab requires a lab coat, goggles, and lab book. On Tuesday, Wednesday, and Thursday, I have choir practice—but each day is with a different choir that has a different music folder. Every day I need the essentials: wallet, keys, palm pilot, water, lunch, snacks, book, knitting…

The problem is that human memory is inherently flawed. It's easy to forget one thing in a long list of required items. For people with schedules and needs that change with the day, it's not uncommon to swap days mentally and prepare for the wrong day. This is especially true in the sometimes-frantic rush to get out the door on time in the morning. What is needed in this situation is something that takes a minimum of effort to use, which can remember what items a person should have and can quickly check as the person goes out the door. A computer could easily remember the lists, but it would need to be paired with some kind of sensor to be effective.

3. Suggested Solution

Luckily, a solution to this problem could be relatively simple. First, one would write a program for a computer which could keep track of what items exist and which items are needed for different days or situations. It would be easy, furthermore, to program it for multiple people in one household. To allow the computer interaction with the actual items, RFID stickers or tags would be placed in unobtrusive places, such as inside a wallet or as a small key ring. Setting up the system might be a bit time-consuming, as a new user would have to identify each new RFID to the computer, but once identified it could always recognize the item, and most items would be used repeatedly, such as wallets or glasses. Tags could also be reused, such as putting a tag on a bookmark and simply changing the book it's placed in. Finally, at least one RFID reader would be needed—preferably near the door—with a touchscreen interface to the computer, so that people could push a few buttons, have their items read and compared to the list, and quickly be told what they might have forgotten.

4. Experiment:

1. Independent Variables

The independent variable is the assistance with preparation each person gets. One set of people will get no assistance at all, and thus act as a control group. Another set will get a list of required items, which would be similar to what is available currently: write a list, check it in the morning. The final group, who has the program checking their items after they think they're prepared, are testing the program as envisioned.

2. Dependent Variables

First of all, the amount of time needed to prepare is important, because a system that takes more time out of an already busy morning is useless. The number of items each person is missing is also important, because the whole point of the program is to prevent missing items. A measure of how satisfied the person is with the process is also important, arguably second only to the measure of how likely they are to continue using the system.

3. Participants

In order to conduct a good experiment, participants would need to be drawn from many backgrounds; not only students, but people who are working for a living, and stay-at-home parents would be examples of good sources of data. Furthermore, the target market demographic would be older and over-scheduled, so it makes sense to test the product with those people.

4. Method

There will be a large number of items that would be typical for a daily preparation. Each subject will create a couple lists of subsets of those objects that they would need on a normal day and on their most scheduled day, as well as an essential everyday list. After doing this, all the groups will give the lists to the experimenter and be given something to distract their mental processes, such as a word puzzle or sudoku, which they would have to work on for about 5 minutes. After this, each group would be asked to put together the items they would need for a typical day based on the list they created. One group would get no help, one group would have the list they made returned, and one group would have the program checking their items when prompted. The items would then be checked against the list, the participant's feedback scored, and they would again be distracted with puzzles. Then they would be asked to prepare for the most scheduled day, with the same assistance and measurements as before.

5. Results and Discussion

I think the experiment is likely to show that they group with the list prepares the fastest with no missing items, but they are unlikely to continue to wish to use that system. The group with no assistance is likely to have missing items and be dissatisfied with that system as well. I think the group using the program, while they might not be any faster than the control group when preparing, will also no have any missing items, and will indicate a high satisfaction and willingness to continue using the program. This would indicate that the program is a good idea and could easily be marketed.