Human Computer interaction

Assignment 1

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Find an everyday digital device, for example, a remote control, digital camera, or an automatic washing machine and examine how it has been designed, paying particular attention to how the user is meant to interact with it.

The digital device that I have selected is automatic washing machine.

1. **From your first impressions, write down what is good and bad about the way the device works.**

   Good about the working of the device:

   - Its architecture consist of a power button that allows the user to turn on or off the machine anytime he wants even if the machine is connected to the socket. This saves the machine from any electric hazard.
   - The transparent door enables the user to keep a check if the clothes are washed or still in process.
   - It has a sound system that beeps when the clothes are washed or if the user puts more clothes in machine than the weight allowed (Usually up to 10kg clothes can be washed together).
   - The user can select the type of clothes that will be washed for instance, cotton, woolen, linen, etc.
   - The user can select the speed of washer and rinser according to desire.
   - User can select the time for wash. Once the time is completed, machine produces beep sound to let the user know and automatically turns the machine off saving electricity.
   - A separate area assigned for detergent and comforter to avoid unbalance amount of soap for each cloth. This feature also make sure that accurate amount of detergent is used.
   - The machine displays information such as the kind of operation that is being performed i.e., rinse or spin.

   Bad about the working of device:

   - No mechanism for mid-way stopping. If the user wants to open the machine door mid-way, the user has to turn-off the entire machine killing the ongoing process.
   - A knob is used to select the type of clothes. The user might select wrong option which can ruin the clothes quality.
   - If the area for detergent is wet already, the detergent might stick to its walls and leading to insufficient amount of detergent to wash the clothes.

2. **Which of Normans Design principles are followed and which ones are not followed, explain with images.**

Norman design principles that are followed:

1. Learnability: The machine is easy to understand and use as each option has clear labels mentioned so that it is easily used by people with zero experience.
2. Feedback: User is given feedback through the transparent door of machine and small screen that shows how much time is left. The beep sound once the clothes are washed or if user puts more weight than it can hold is also considered as feedback.
3. Consistency: The machine is consistent throughout the process.
4. Constraints: Constraints are applied on the door of the machine which locks the machine if it is under process avoiding the possible accidents.
5. Natural mapping: the user selects the option through knob which lights the corresponding light on machine for that option. This allows the user to check simultaneously if he has selected the right option or not.

Norman Design principles not followed:

Affordance: Different Norman principles are followed in washing machine, but there is a lack of affordance. Since the machine has multiple options, it is complex for the new users to understand.

3. **Based on what you have learned so far compile a set of usability and user experience goals that you think will be most relevant in evaluating the device. Decide which are the most important ones and explain why.**

Learnability: Washing machine is used in our life daily, so it suggests that the design should be in a way that is easier for them to understand even if the user is new. The labels on each function button increases the learnability.

Efficiency: Due to frequent use the machine has to be efficient enough that less time is consumed for each operation. The user is able to select the options within seconds.

Visibility of system status: Feedback from the system is very important. In this case, the beep sound for two purposes i.e. when more weight is put or when it is done, is considered a feedback to the user. The display screen showing the time left for the wash, the options selected lights the corresponding light are some more feedback from the machine. The transparent door to keep a check is also a feedback.
Satisfaction: The overall goal of any system is to make sure the user is satisfied. In this case, the user is satisfied as the clothes are being washed timely and properly.

Error Prevention: In machine there is a possibility that an error might occur more often. Hence, this is the only aspect that is not fully available in the system. It is not necessary that we will make an error but there are chances.

4. **Finally, discuss possible improvements to the interface.**
   Following improvements can make a lot of difference.
   - The machine could be improved by providing the safety precautions on machine, in form sticker.
   - The option to select through the knob could be replaced with a button that goes through a list until user enters it to select the option.
   - Useless options must be eliminated.
   - The architecture should have a pause button to pause the operation for a while rather than killing the process.