Thinking About User Interface Design:-

1) Automatic Faucets:- We see these new and advanced sanitary devices in most public bathrooms. In elegant hotels they look sleek and give easier use and maintenance, while regular public bathrooms are made more sanitary and environment friendly. All the user has to do is wave their hands under the sensor on the faucet, and the water turns on, walk away from the faucet and after a set time it turns off. But they still don't fix all the problems they were designed for and present even new ones which did not exist before.

Strengths--

● The users don't have to touch the units to use them. Many people cringe at having to touch the faucet not knowing what germs reside on them. So it comes as a great relief that all we have to do now is wave our hands under them and voila it works.

● They protect the environment. How many times have u gone to a public bathroom only to see that somebody before you left the water running. In the new design a few seconds after the user has left, the devices shut themselves off, hence preventing this careless wastage.

● They can even be made to look more elegant. In expensive hotels we see new designs which are sleeker and more pleasing to the eye. The bulky nob's controlling the water are gone giving designers less constraints on how to design them.

Weaknesses--

● The user cannot control the temperature or pressure of the water. The water is always preset to a fixed temperature and pressure and many times this is too cold or too hot or just not powerful enough. A small switch or controller to change the temperature and pressure should be present to fix this. If not for every faucet at least one for the entire row of them should be there.

● It is very hard to know exactly where to put your hand to turn it on. Many a time it takes me 2-3 minutes just to turn the water on, and once on if I move my hands just a bit it turns back off. The sensor is too small to actually see in most of these faucets and this makes it hard to know where to position your hands. I think that the sensor's should be much bigger and easily distinguishable so that you can tell where your hands should be.

2) Television Remotes:- (Im from India, most places there don't have satellite tv’s) T.V remotes have always been changing and evolving, some of the changes are good and some are bad. Remotes have to evolve with the equipment they control, and as TV’s have become advanced so have they. Our T.V can now do so many things that the remote is getting over-crowded. The designers are forgetting that the regular customer doesn't need to have a thick guide just to flip channels. Some added options are good, but others just confuse us.

Strengths--

● The channel numbers are grouped together making it easy to press the channel number you want without even looking at the remote. The layout which has the common used buttons together and the others further, makes it easier for the casual T.V watcher to just stick to his comfort zone and not accidentally press the other buttons.

● Most of the buttons are well labeled and follow a logical pattern making it easier to know the general area of where the button you are looking for will be. Most buttons commonly used are
also bigger making it easier to press them. The big on button on most remotes gives particular satisfaction after having pressed it.

- The navigation buttons are also nicely laid out, with the up arrow on top, down below and so forth, along with having the enter button in the center. This makes it a very logical operation while navigating menus or channels.

**Weaknesses--**

- Many remotes have generic colored buttons on the top with no indication as to what they do. At least some sort of label would make it easier to understand what these buttons are for. You could either make an on screen menu through which the operations of these buttons can be performed, or at least put small pictures under them which give us some sort of clue on what they do.

- Many remotes in an effort to make them look good are very thin and fragile. They make the battery compartment so smooth that it is near impossible to get it to open without breaking the remote itself, but you can only get to that stage if you can find it first. They are so thin that they keep slipping through your fingers all falling through the cracks of the couch. If the remotes were made a little bit sturdier, or if there were subtle hang grips to make it easier to hold, it would help a lot. Also some sort of indication of where the battery compartment is, through an indentation etc. would be helpful.

- The new T.V remotes boast that you can even control your dvd player with them. That is all well and good, but programming your remote to do it is as easy as flying a jet fighter. There is no indication of even where to begin on the remote itself. There are just generic play, pause, stop buttons which make you wonder what to do with them. Maybe a button named program, which opens an on screen menu to guide you through the process would be helpful. The T.V remote has a chance to use a big screen for user interface, i.e the T.V itself, yet very few companies actually do that.

3) **Digital-Analog Watch:-** After the invention of digital watches, the new trend is a hybrid of digital and hybrid watches. These watches give us even more functionality, and you can still get the old analog watch feel. The designers tried to advertise it as the best of both worlds, but i don’t think they were able to accomplish that. The basic design is that of a digital watch, with the analog watch hands put over it.

**Strengths--**

- You can always see dual time. Since i am an international student this helps me as i can always see the time at home by looking at the analog hand and the current time, by looking at the digital display. This can help a lot of people who travel as they can feed in the new time, while still knowing what time it is at home.

- The watch has a world time feature, which makes it easy to change the time to any time zone you want. It is also easy to use, as the button on the top left moves forward in time zones and that on the bottom left moves lower in time zones. It even tells you the name of the city you are switching to and adjust for daylight savings.

- The watch is also water proof and is sleek and metallic. Many people complain that the new digital watches look childish and tacky, but since this is also an analog watch, it incorporates the style of analog watches. It is metallic and though its buttons can only be pressed, they look like analog watch buttons.

**Weaknesses--**

- It is extremely hard to change the time on the analog watch hands, as the idea of controlling them using buttons is very confusing. Even after reading the manual it is hard to understand at
Learning To Listen To Users:

1. **Architectural software:** I asked my friend who is an architecture major about software that annoys him the most and how they can be fixed and this is what he came up with.

   - Most architectural software is very complex, so any good company should realize this and provide adequate tutorials to make it easier for users to learn all the controls. But most times the tutorials are as hard to understand as the software itself, taking days to go through and making everything even more confusing. This delays time actually working on the project as you have to go through the myriad tutorials for the different controls. One way they could have made this better is to have video tutorials, which instead of describing in cryptic ways, just show you how it's done.

   - Although compatibility between different software by the same company is well done (e.g. Adobe), when having to work with programs of different companies it makes it very hard to go back and fix your mistakes. For example if I need to do half my work on adobe and the other half on revit, if I realize I have made a mistake once I have ported my project to revit, everything done on it so far has to be undone for me to fix it. This causes further delays and frustration on an already long and hard project.

   - These companies also come out with new versions of the software too fast. Just when I think I have mastered everything on the old one, the university shifts to the new and everything has to be relearned. This wouldn't be so much of a problem were the controls similar, but many times the new software completely revamps the user interface. They could make it much easier on users if they followed the same basic design framework on all their software, so that only the new advanced techniques need to be learned.

   - This is more of a specific example combining some of the aforementioned problems. In photoshop, some buttons have to be right clicked to show more specific buttons. The tutorial
doesn't tell you to do this and so most people only end up using 20% of the programs capabilities.

2. **Home Telephone:** I asked my mom what interactive system annoyed her the most and she came up with the telephone. Our home telephone is made such that you have to dial 0 to get an outside line and then the number you want to call. It also has an intercom system so that other phones in the house can be called by using their respective numbers. I have outlines the drawbacks as she told me down below.

- When the phone rings in the house, it first rings downstairs and then slowly goes from room to room until it is picked or the person hangs up the phone. You can pick the phone up by hitting *83 and then the number of the extension that the phone currently is in. This is not too much of a problem, except whenever there is another call on the other phone (we have 2 lines). The phone doesn't ring on it. It is still on that phone but makes no indication that it is, and we think that it has been cut, only to start ringing in the next room after awhile. So if i am on the phone and another phone is ringing in my room, i have no way to figure that out. Maybe if they had put a beep or something like that, it would have been easier. There are so many times that people tell me they have been calling me for the last hour and i have no idea what they are talking about because i was on the phone.
- The new phone also has a small menu screen to make it easier to use the controls, or so i thought. Using the address book feature to add numbers is almost impossible. None of the buttons have any labels indicating what to do. Also there is always a new message symbol there and i have no idea what it means as we don't have an answering machine. Since they have already made a screen maybe a short help on it, or even labels on the buttons would have been helpful.

3. **Sound System:** The next person on my list was a friend of mine who is big on sound systems. He has a nice system in his room with a cheap stereo amp attached to it. When asked what device irritates him the most, it surprised me to hear it was the same sound system. Now he is no novice, he has been using sound systems for a long time and also moonlighted as a d.j. The fact that even he has problems with this means that there are some serious design flaws in it.

- The sub-woofer and amp are not compatible. Most sub woofers have the plugs which look like headphone jacks, but the one which came with this system has raw, black wires usually used for normal speakers. Which would be okay if they had designed the amp the same way, but the amp does not take these as inputs to the sub woofer. I tried connecting it as the back speaker, but then i don't get enough base. If they are going to sell it as a combined system at least make sure that all the parts are compatible with each other.
- The inputs to the amp are also badly designed. The amp has an input for one system with digital sound. But if you try to plug the digital wire in, it will take you 10 minutes to find out where it goes. The input is not next to the other sound inputs of the device, its not even close. The input is on the other side of the amp, with a small “d” written on top of it. Why would you not put an input belonging to the same system in the same cluster. And what the hell does “d” mean?
- Putting on the system is also hard, since it came with only 1 remote which controls the music system and the amp, and the equalizer and also can be used to program a d.vd or t.v. The way you use it to control each respective system is by pushing the button corresponding to it, which lies on the top and the using it as a normal remote. The problem is, it is so hard to know which mode you are currently in as there is no indication of it anywhere. A small light over each mode would not have been that hard to integrate and would have saved a lot of grief. Also the other
buttons should not be so close to the mode button, because I keep accidentally hitting the wrong mode and alter something I never meant to.

*Power Law Of Practice:*

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The Learning Constant For this Experiment is: 0.263

The user got his first few tries wrong and then i think he just got the hang of it. He was using one hand and constantly looking at the button's he was pressing. He seemed to have developed a rhythm in his head, because he was hitting everything at nearly the same time, he also kept reciting the input to himself over and over again.
**Choice Reaction Time:-**

a) Using Hicks law

\[
RT = a + b \log (n)
\]

here \( a = 548 \) and \( b = 420 \), \( n = 12 \)

\[
RT = 2.05 \text{ sec}
\]

b) Again using Hick's law

50/50

\[
RT = .5(548+420 \log(4)) + .5(548+420 \log(8))
\]

\[
RT = 1598 \text{ msec}
\]

75/25

Similarly,

\[
RT = 1493 \text{ msec}
\]

90/10

\[
RT = 1430 \text{ msec}
\]

Minimum is when all is dynamic

\[
RT = 1388
\]

Maximum is when all is static

\[
RT = 1808
\]

Because of the way \( a \) and \( b \) are found there will always be mistakes in the answer we get in real world tasks.