**Mini Task 2**

**Flow of the project**

**Problem statement:** Have a device which can be operated remotely without touching the computer. Because we may not be able to touch the computer all the time, as sometimes our hands may be dirty.

A simple solution could be just go and wash our hands but we are lazy to do that 😅😅. That’s where our knowledge of electronics comes handy to us.

*Motion Sensor -> Microcontroller -> Display -> Computer*

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| **Part of the**  **Pipeline** | **Feasibility** | **Advantages** | **Disadvantages** |
| Motion Sensor | Easy to work with them, available in markets | Solves purpose of device | Costly(~2k) |
| Microcontroller | Usually hard, unless very skilled and experienced | Many libraries to work with. | Limited Executions, Hard for beginners |
| Display | Easy to control. | Gives a good look to the device. Cheap | Not power efficient. Should be handled with care. |
| Computer | Need to connect with our own computer | No need to buy anything extra | Many libraries need to be installed and it maybe tiresome for beginners. |

**Choosing a pipeline:**

Here, they have chosen SENSE, which is around 29 pounds (2000 Rs) on an online website. SENSE is a multipurpose device, it can also be used to measure temperature, humidity, motion and a lot more. But since, our application is specific we can take a sensor which just sense motion and nothing else. Or else, we can even utilize the other features that are offered by it but it is not required. Also, it is a pre designed developmental board, hence all other needs for connections, charging, coding have been taken care. Therefore it is a good choice as a microcontroller. It serves us as a microcontroller as well as motion sensor. It is also in a same price range as of standard Arduino, Hence a good deal. Also, we get a code which is already written for the device ready made. Hence, creating ease of writing code too, as we would just need to manipulate some required sections in it. An alternative could be to use a sensor APDS gesture sensor with Arduino. But this would require 2 extra components and will decrease the power effeciency of the circuit.

# Display used here is Monochrome 128x32 SPI OLED graphic display. Which is a little costly around 1700 Rs. Several cheaper models for display are available on the net. Just now I found a similar OLED for just 240 Rs. Also, the display is just optional here. Hence, it does not make sense to pay too much for it. The display is optional because, it isn’t much required. It just shows the status of the volume which is also shown on the computer screen. Hence, a cheaper variant could be used instead of this.

# Next we also need to consider power consumption factor. Overall we see after removing the display the power management of the system is quite well balanced. The ready to use developemental boards take care of their power management systems and are quite efficient over that. Also, the whole circuit could run just on a 3V supply. An OLED is an issue which has both positive and negative side effects to the customer. It decreases the battery life of the circuit. While positive is that it can show status of the volume and can also show how much volume is changing. In my eyes it depends on the need of the person who is working on the project.

The other components required here, are some good quality wires, breadboard, Arduino IDE, adafruit QT Py.

**Prototyping Phase:**

After ideating and selectively choosing the right components for the project, we just need to build over the circuit to get the project ready. A working prototype can be realized by just following the schematic as described in the project, also we can remove the OLED display currently and later modify that section as it is just increasing our cost and decrasing power efficiency of the circuit.