**PROJECT BUILD GUIDE**

**DESKTOP**

**CONTROL HUB**

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**NOTE**

This hub is just a collection of controls spread across your desk in one location. User can alter their choice of equipment based on their usage (Example, No of switches based on the no. of lights you are going to control or addition of an extra audio port based on the users convinience)

This project contains code files subject to change based on the selection of equipment done by the person making it and the circuit choices made. Following are the important prerequisites before starting to build on for yourself.

* You will need to arrange some components (Laptop DVD reader , knobs for potentiometers , Wooden box ) which might be a little difficult to procure.
* You need to be able to edit the 3D box template according to the size of the equipment you have as it may vary from the one used in the project based off which the template is designed.
* You will have to connect it directly to the motherboard of the system youre trying to control .

* **LIST OF COMPONENTS :**
* Arduino Uno - 1
* Jumper Wires – Male-Male, Male-Female , A set each
* Capacitive Touch Sensors (TTP223) – Quantity based on user choice, based on no. of lights to be controlled
* 1602 LCD Moudule (For Arduino) – 1
* I2C Shield for LCD – 1 (Optional, Makes the code easier)
* USB HUB – Based on the user
* Audio Interface – Based on the user
* Latching type IO Switch – Based on user , as to how many items you wanna control .
* DVD Reader – 1

**(All the components mentioned above can be altered based on personal preference. For example, DVD reader can be replaced by a full fledged XLR audio interface built in the hub)**

* **LINKS FOR EQUIPMENT I HAVE USED :**

Arduino – <https://www.amazon.in/Robotbanao-Atmega328p-Cable-Length-Black/dp/B06XBMB9T1/ref=sr_1_4?dchild=1&keywords=arduino+uno&qid=1624783024&sr=8-4>

Jumper Wires – <https://www.amazon.in/Electrobot-Jumper-Wires-120-Pieces/dp/B071VQLQQQ/ref=sr_1_4?crid=3N7RC0XP097S0&dchild=1&keywords=jumper+wires+for+arduino&qid=1624783198&sprefix=jumoer+wires+%2Caps%2C443&sr=8-4>

Touch Sensors – <https://www.amazon.in/Robodo-Electronics-REDTTP223-Capacitor-Channel/dp/B07B8ZW94K/ref=sr_1_2?dchild=1&keywords=touch+switch+tp223&qid=1624783231&sr=8-2>

LCD – <https://www.amazon.in/INVENTO-HD44780-Character-yellow-green-Interface/dp/B07XNBD2JD/ref=sr_1_2?dchild=1&keywords=lcd+1602&qid=1624783296&sr=8-2>

I2C Shield – <https://www.amazon.in/Robotbanao-Display-Interface-Address-Changeable/dp/B07H1WT6DT/ref=sr_1_1_sspa?dchild=1&keywords=lcd+1602&qid=1624783285&sr=8-1-spons&psc=1&spLa=ZW5jcnlwdGVkUXVhbGlmaWVyPUEzS1Q1MzFRV0ZWOFE3JmVuY3J5cHRlZElkPUEwNzMxNjMwSjBCSVFZSVRWWUUyJmVuY3J5cHRlZEFkSWQ9QTAwNTQ5MzEyUlVPSk1VOEtFRFBRJndpZGdldE5hbWU9c3BfYXRmJmFjdGlvbj1jbGlja1JlZGlyZWN0JmRvTm90TG9nQ2xpY2s9dHJ1ZQ==>

USB HUB – <https://www.amazon.in/CEZO-Expansion-Bracket-Adapter-Desktop/dp/B08X4TKGDP/ref=sr_1_4?dchild=1&keywords=usb+3+front+hub&qid=1624783468&sr=8-4>

Audio Card – <https://www.amazon.in/WRIGHT-Sound-Adapter-Laptop-Silver/dp/B092SF3XDL/ref=sr_1_2?dchild=1&keywords=usb+audio+card+wright&qid=1624783502&sr=8-2>

Latching Switch – <https://www.amazon.in/RDR-Stainless-Medium-Latching-button/dp/B089DJ8ZJS/ref=sr_1_1?dchild=1&keywords=latching+i&qid=1624783514&sr=8-1>

DVD Reader – <https://www.amazon.in/Dell-DW316-External-Optical-429-AAUX/dp/B00VWVZ0V0/ref=sr_1_17?dchild=1&keywords=Laptop+DVD+Reader&qid=1624783555&sr=8-17>

* **THE BOX :**

For reference, I have uploaded the 3D files for the box . I have made a custom box out of hardwood, images of whose templates are also provided.

You can get your box made from a 3D printer shop as well.

**NOTE : It is adviced to measure the equipment you have got in order to prevent miscalculation of size in the printed box. Layout and slot placements can be changed according to the user.**

**User may also need to design their own screw threads and holder placements on the inside of the box based on the equipment they have got.**

**A white electrical box

Description automatically generated with medium confidence**

\* LAYOUT OF THE FRONT PANEL **( LAYOUT BASED ON COMPONENTS I CHOSE )**

* **TESTING THE CODE AND EQUIPMENT :**

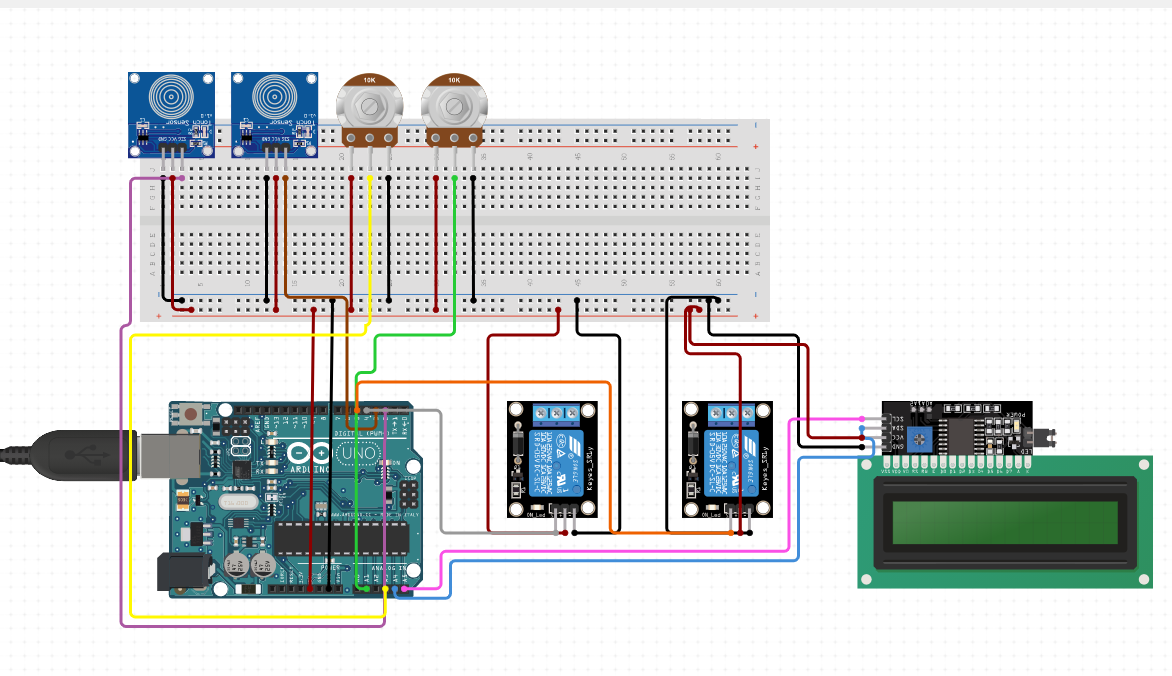
Once you have done selecting and collecting the equipment, its time to compile this and upload the code.

1. You may have to change/add/remove code snippets from the provided code based on your selection of equipment and circuit.

For reference, I have attached the images of my box and the circuit layout I have chosen.

It is adviced to test the equipment on a bench before putting it inside the assembly box.

Once the equipment is ready and working , Put it in the box .



\* CIRCUIT LAYOUT OF THE COMPONENTS **( CHANGE PINS ACC TO THE CODE SNIPPET YOU HAVE USED )**

**FUTURE UPGRADE POSSIBILITES :**

Future upgrades tha can be done in this project are as follows :

1. Arduino uno can be replaced with an Arduino Yun and can be paired up with an inbuilt microphone and speaker. This may serve as your very own smart home and voice controlled light and IO operations.
2. Addition of a wireless charging coil to the top of the box can make for a mutually conducting wireless charger on the desk.

Feel free to post any other suggestion or possible future upgrade option in the discussions tab of this project.

* **LINKS AND REFERENCES :**

Wire.h Library Downlaod – <https://wire-h-library-download38531.peatix.com/>

Liquid Crusystal Library (Mandartory for I2C protocol codes) – <https://drive.google.com/drive/folders/1awd6JT1oKGxNRlwklXrv0Sg-LJmyFLPk?usp=sharing>

Image Gallery Of The Project – <https://drive.google.com/drive/folders/1JfwrLUXL5uetHT2PL3bVTkUf-fxCLXtd?usp=sharing>

**(VIDEO REPRESENTATION INCLUDED)**