

Journal Entry #3 (09/27 – 10/01)

Objective: Research over capacitive sensing

Introduction to Capacitive Sensing:

Capacitive Sensors:

How Capacitive Touch Through Metal Works:

https://www.youtube.com/watch?v=bokWXzVXsyc&ab_channel=TexasInstruments

This video details some of the benefits of having capacitive touch through metals.

- Touch through metal is apparently waterproof
- Operates well while using gloves
- Dirtproof

Arduino with Capacitive Touch Sensors:

https://www.youtube.com/watch?v=Jt2yZMGCQBQ&t=45s&ab_channel=BasonTech

Materials required: Jumper wires, Arduino Uno, and capacitive touch sensors

- Capacitive touch sensors could be integrated to the keyboard beneath the keycaps.
- We would have to figure out how the keyboard would detect the touch sensors as an input
- This option may not be the best aesthetically since so many wires would be used for each key

How Capacitive Touch Screens Works:

https://www.youtube.com/watch?v=BR4wNq6WGkg&ab_channel=TomHebb

- $C = EA/d$
- A capacitor can be made with two conductors

DIY Capacitor: https://www.youtube.com/watch?v=BR4wNq6WGkg&ab_channel=TomHebb

- Homemade capacitor (paper, foil, paper, foil, paper)
- Aluminum and paper are cheap materials to purchase
- Capacitance of our capacitor can be determined using capacitance formula
- We can use aluminum as our conductive plates and

USB Keyboards with Cherry MX Keycaps:

Logitech G610 Orion Red Backlit Mechanical Gaming Keyboard

https://www.amazon.com/Logitech-Backlit-Mechanical-Gaming-Keyboard/dp/B01CDYB8AG/ref=dp_fod_1?pd_rd_i=B01CDYB8AG&psc=1

Mechanical Gaming Keyboard, MageGee 2021 New Upgraded Blue Switch 104 Keys White Backlit Keyboards, USB Wired Mechanical Computer Keyboard for Laptop, Desktop, PC Gamers(White & Blue)

https://www.amazon.com/Mechanical-Keyboard-MageGee-Upgraded-Keyboards/dp/B087P7153D/ref=sr_1_4?crid=1J8WDVY7EBU5C&dchild=1&keywords=mechanical+keybo

[ard+blue&qid=1633312887&s=electronics&sprefix=mechanical+keyboard+b%2Celectronics%2C505&sr=1-4](#)

Mechanical Gaming Keyboard Full Size, Btlean LED Rainbow Backlit Ultra-Slim Wired Keyboard with Blue Switches, Full-Key Rollover, Ergonomic Water-Resistant USB Keyboard for Windows Mac Gaming

https://www.amazon.com/dp/B09D3DDQ99/ref=sspa_dk_detail_1?psc=1&pd_rd_i=B09D3DDQ99&pd_rd_w=LPCFj&pf_rd_p=887084a2-5c34-4113-a4f8-b7947847c308&pd_rd_wg=g8RQD&pf_rd_r=71FREZE5FPA8AH9B60K5&pd_rd_r=f7f44ae0-2a46-4042-aece-7040324d0a55&spLa=ZW5jcnlwdGVkUXVhbGlmaWVyPUEzNVNTNlpMOTThSMFYyJmVuY3J5cHRIZEIkPUEwODg4MjMzMlRDVFgyS0pDU0VQUSZlbnNyeXB0ZWRBZEIkPUewOTk0ODA1OUtKSzRTOEFDR1RaJndpZGdlIdE5hbWU9c3BfZGV0YWlsJmFjdGlvb11jbGlja1JlZGlyZWNOJmRvTm90TG9nQ2xpY2s9dHJlZQ==

Capacitive Touch Sensing Being Used in Midi Keyboards

https://www.nime.org/proceedings/2012/nime2012_195.pdf