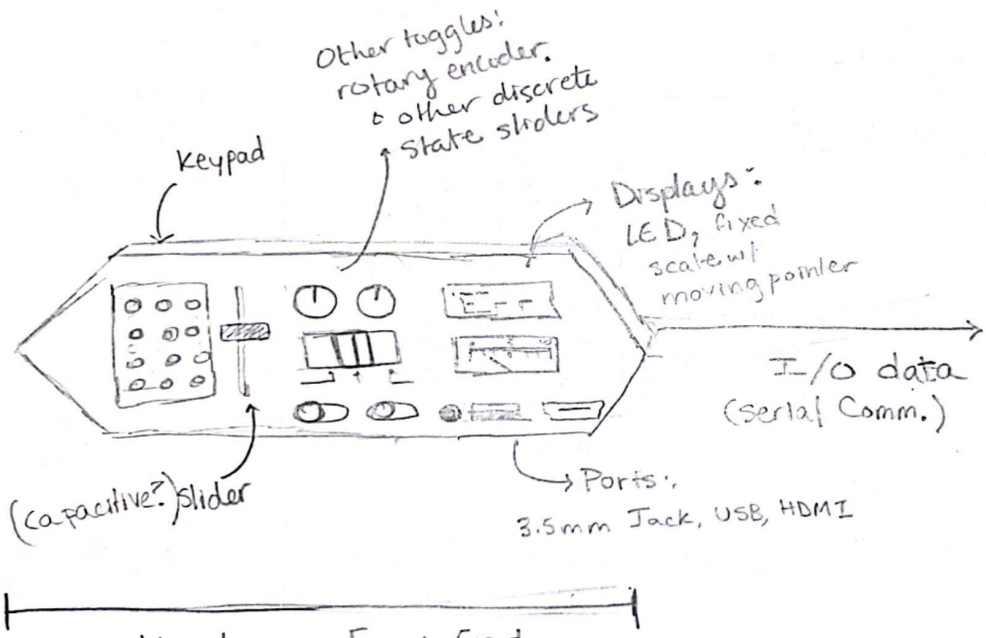
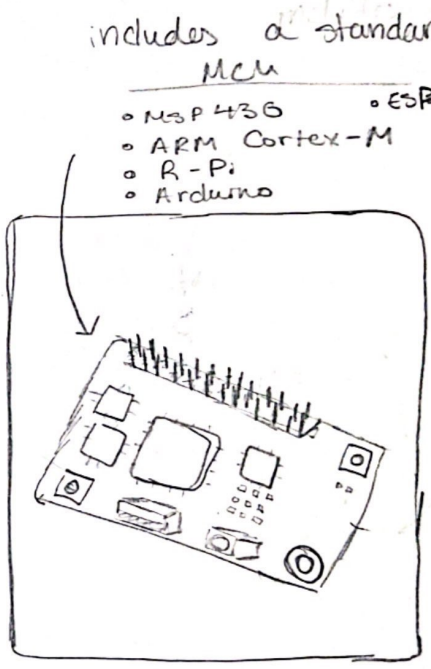
Concept Drawing 1 : The Base Idea



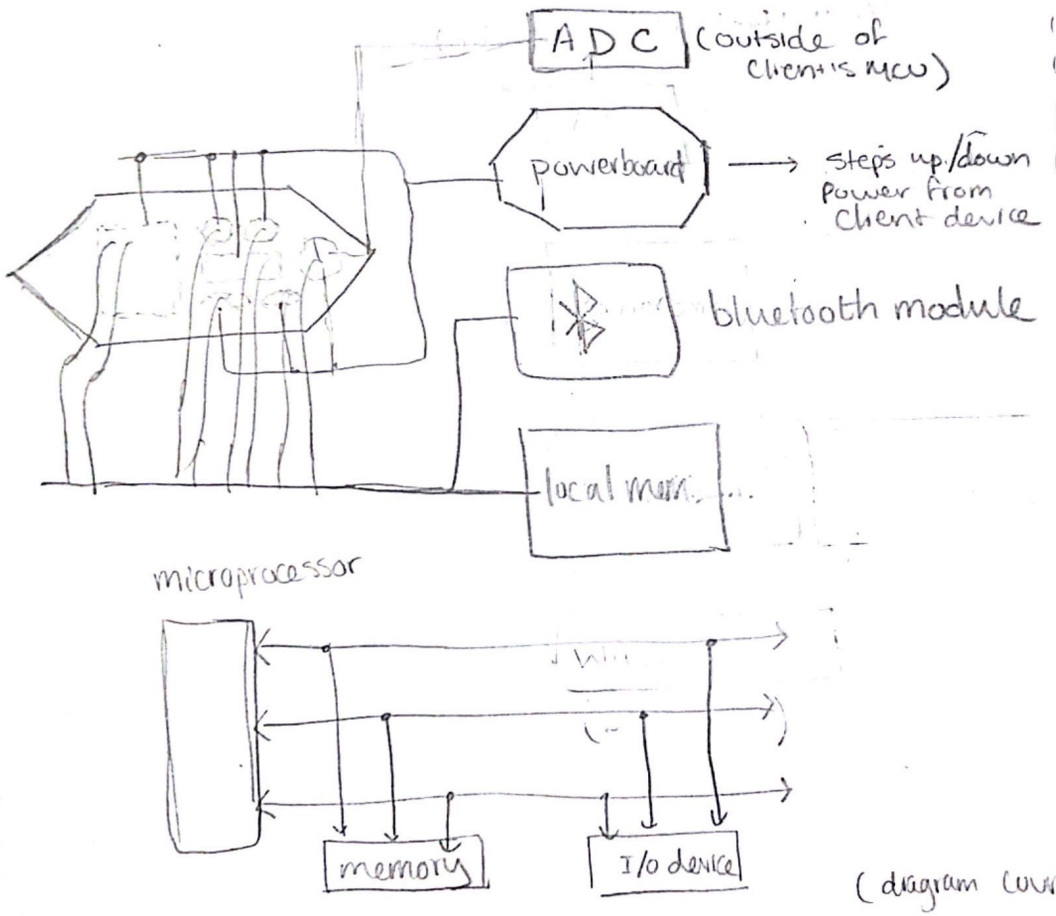
Hardware Front End

Various physical UI components
Embedded into a distinctly
shaped enclosure



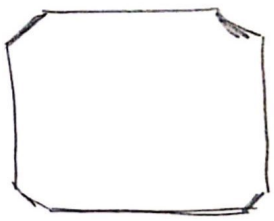
Some Black Box
Device created
by Client
(8086 MCU?)

Concept Drawing 2 : Hardware Back End



Part of client dev.*

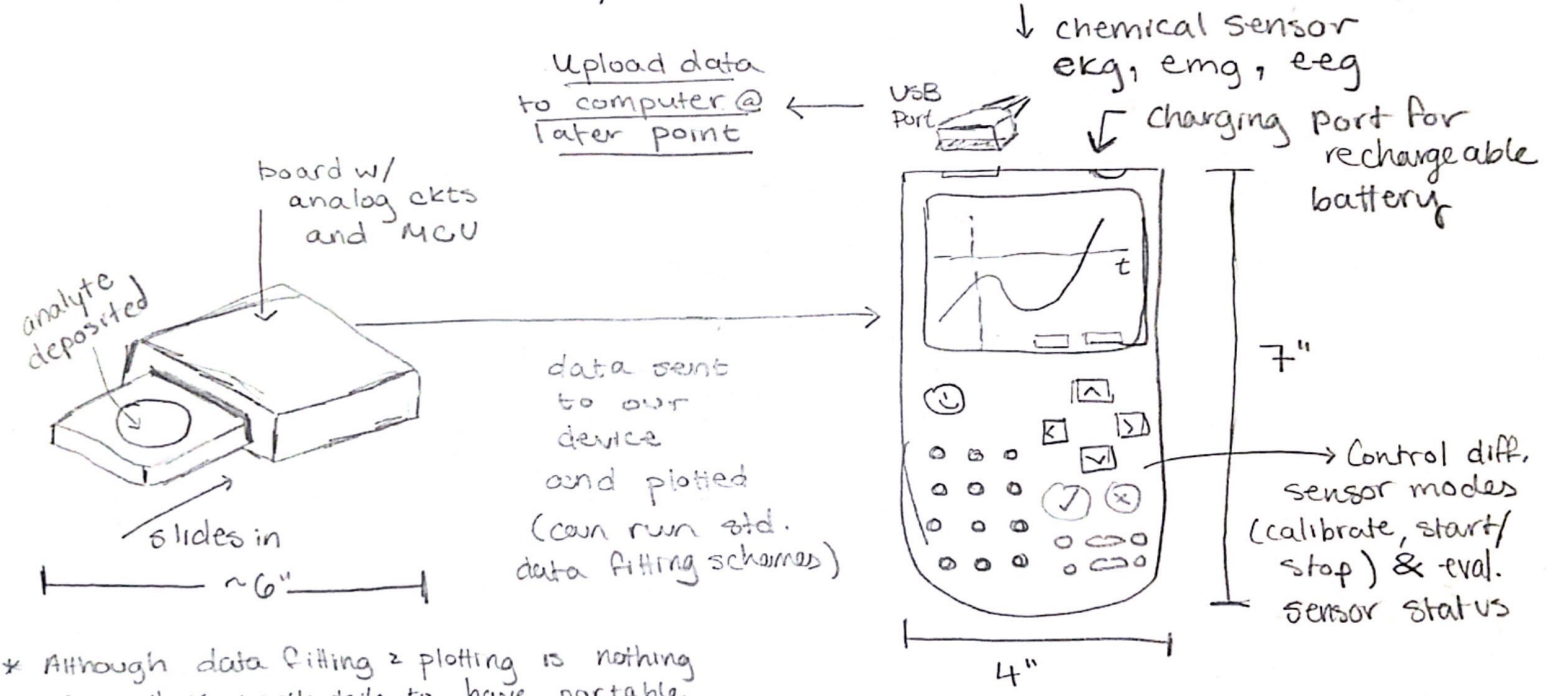
microcontroller



w/ peripherals

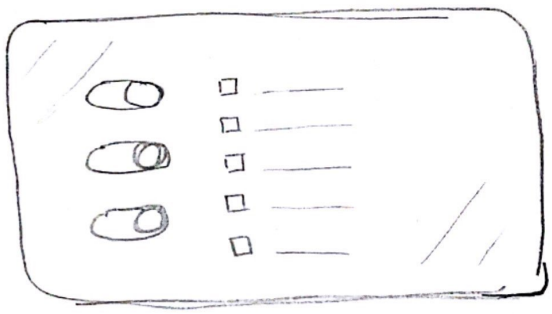
(diagram courtesy of tutorialspoint.com)

Concept Drawing 3: Industry Application (biomedical instrumentation)



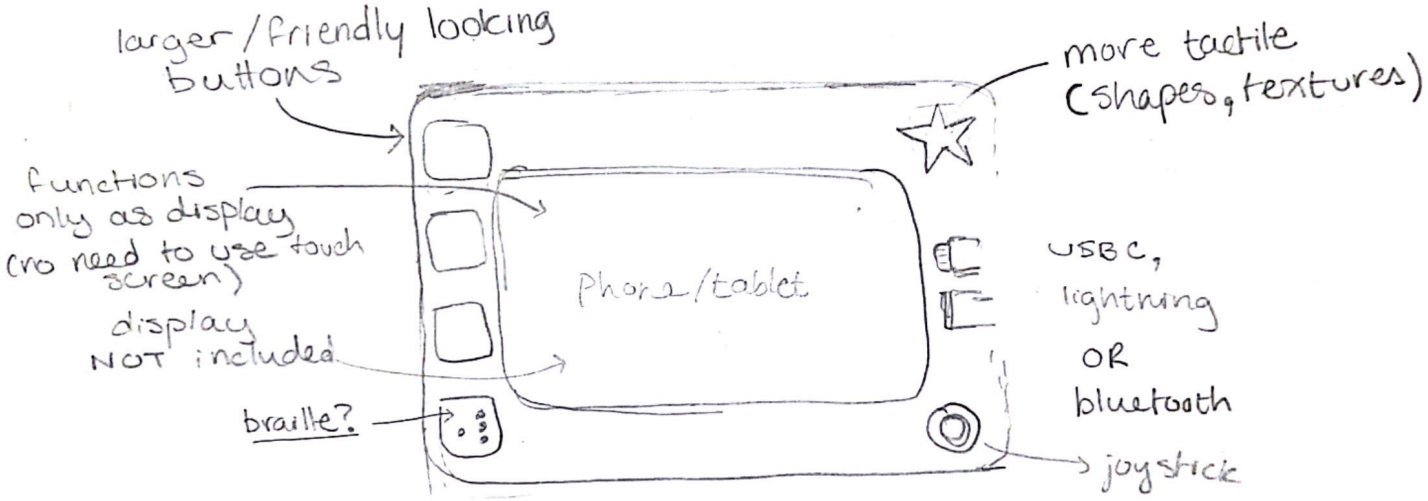
* Although data fitting & plotting is nothing new, it is worthwhile to have portable devices when testing must be <u>on site</u> (avoids hassle of only conducting tests in lab w/ computer)
* approximately TI-84 sized
* There are <u>privacy & security laws</u> regarding medical data & this system keeps data safe until it can be uploaded to larger comp system later.

Concept Drawing 4: Touch Screen UI



- panel is approximately phone sized (3" x 6")
- all toggles are touch screen
- hardware back end is roughly the same as drawing #2

Concept Drawing 5: Console to insert phone/tablet w/ App interface (Children's toys/apps)



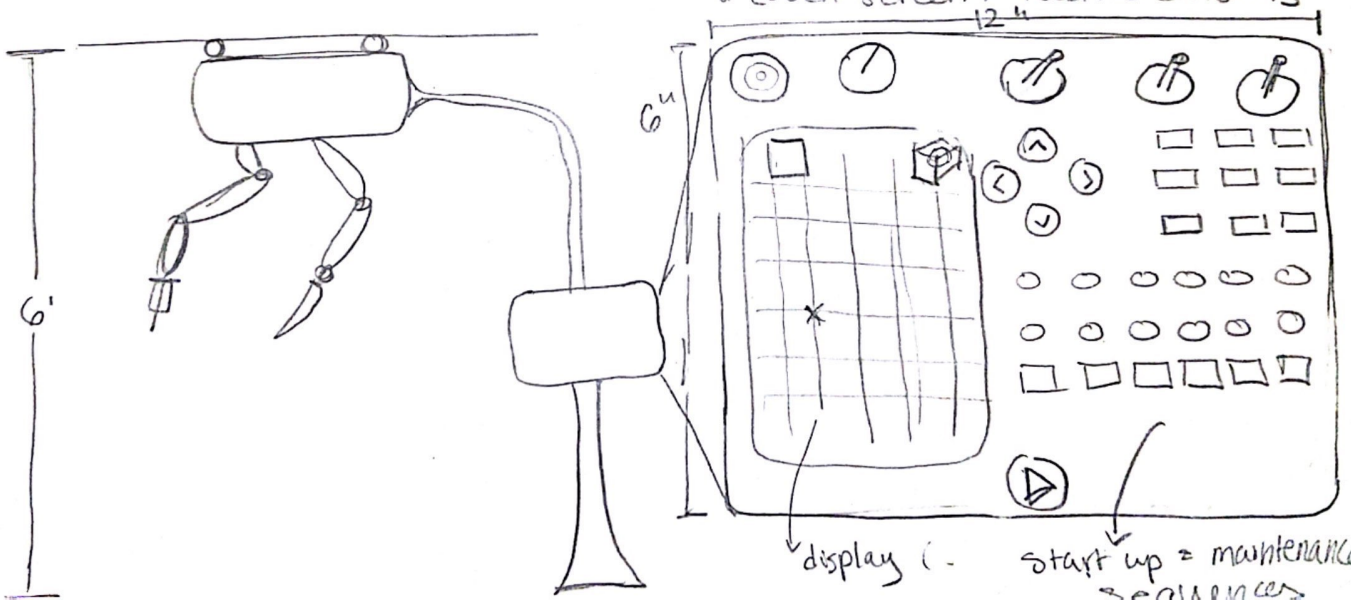
- Console hardware must interface w/ popular phones/tablets
- Console receives data from app & button function shifts dep. on the game
- like nintendo switch?
- works w/ various apps!
- Could have applications for differently abled (blind, autism)

* could function as educational tool

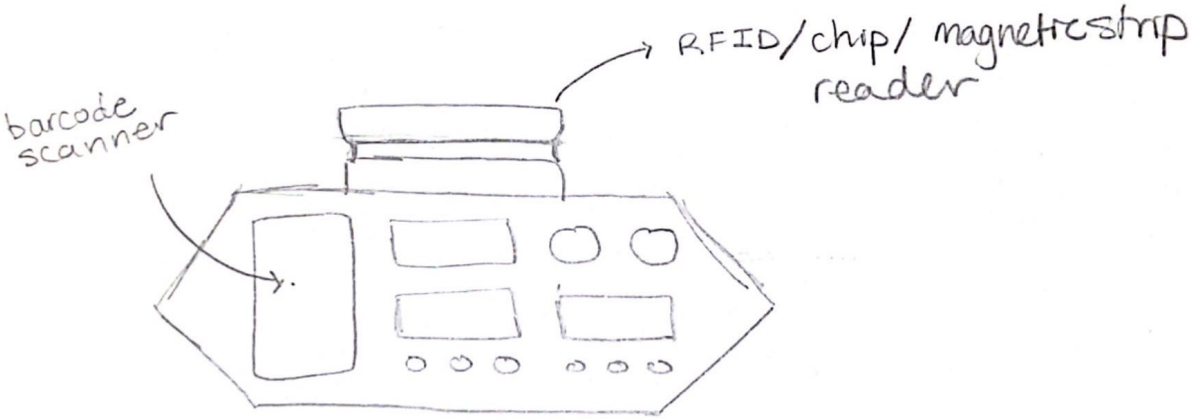
Concept Drawing 6: Industry Application
(industrial/large scale robotics)

ex. Robotic Surgery

- novel feature compared to prev. drawings: positioning system for surgical arm (control automatically or manually)
- Control system developed by client but interfaces w/ our panel
  - rough + fine control of position
  - touch screen + tactile controls



Concept Drawing 7: Accepts Payment/Identity Info

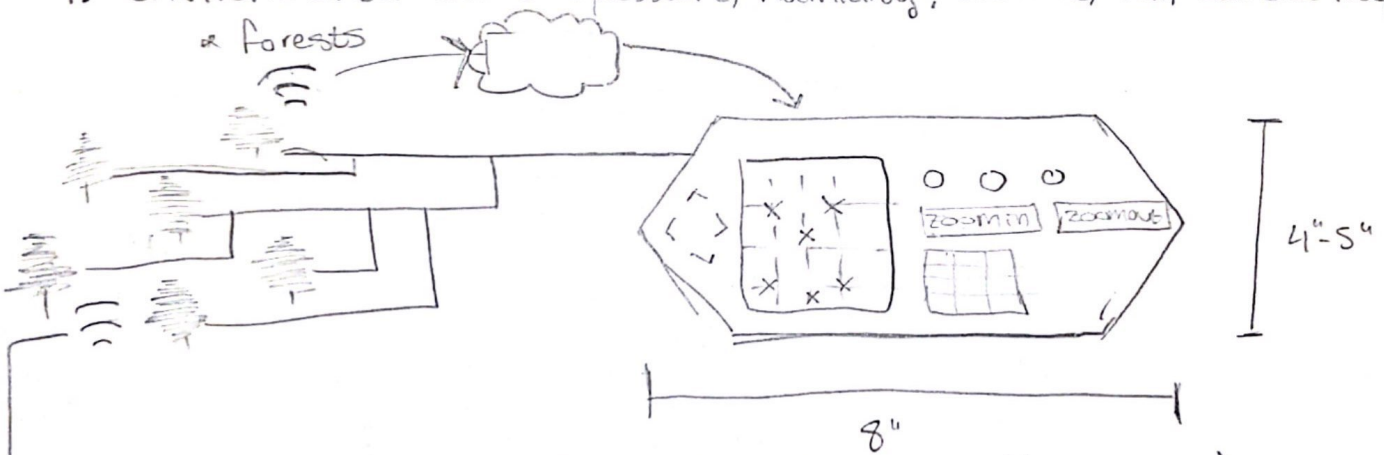


- Ticketing @ public transportation
- Vending Machine
- Ticketing @ events
- collecting environmental data on tagged species/locations

Concept Drawing 8: Monitoring a Network of environmental sensors

Systems One might want to monitor

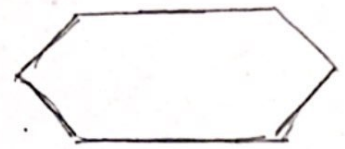
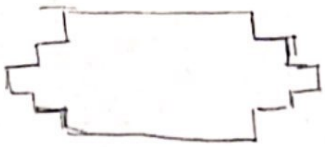
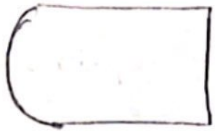
1. Plumbing of building
2. Municipal Water
3. electrical systems (w/i building, generation)
4. environmental data (pressure, humidity, seismic, soil, camera traps)



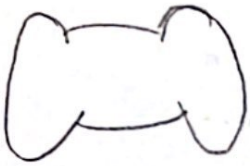
- Read & Collect Data from Central Point (local mem)
- use UI to troubleshoot locations that are down
- Could Also wirelessly transmit data to analysis tool (Power BI) & transmit back to panel

Concept Drawing 9: Enclosure Shapes

The panel must have a distinct & Recognizable shape (w/o losing too much usable area, ergonomics, stacking) simple, accomodate the pieces, modularity

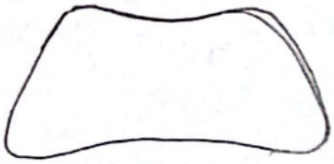





my 2nd fave

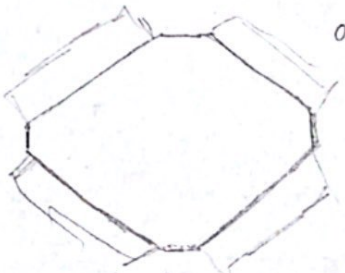


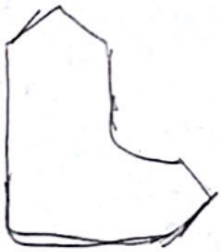
very xbox like

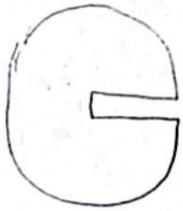




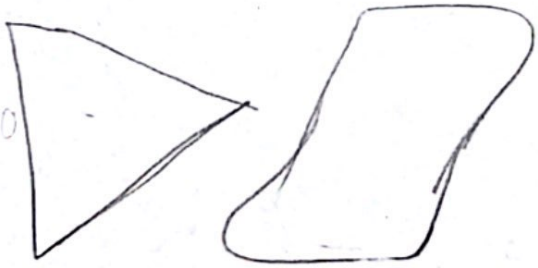
addons











3rd fave

- 3D printed w/ ProtoControl logo
- environmentally friendly materials (recycled plastics)
  - TPU
  - Tire TPE
  - R-PLA
  - high impact polystyrene

Concept Drawing 10: The Dev. Kit