ece 445 lab notebook

brainstorming

classroom question hub
  problem: students not wanting to verbally ask questions, raising their hands & not
              being seen by the teacher
  what's wrong w/ what's on the market?
    like menti: takes up a screen, they have to make up the slides
    too many different apps clogging phone, need uniformity

  what it'll look like:
    vibrates when someone has a question
    kind of like a second monitor, but smaller... trifold
    light indicators... makes sense, doesn't make sense, inbetween
    needs to be in direct line of sight
    vibrating wearable
    different modes: vibrate until snooze, vibrate in time intervals
    anonymous or non-anonymous hand raising, question text

discussion between buttons & dials:
  how to navigate raised hands & asked questions
  turn on/off
  indicators on/off

cost:
  buy a digital picture
  buy a picture frame & a screen separate
  look up cost of chips (for wearable)

extras:
  make hub vibrate, if we have time then vibrating wearable

research:
  parts:
    screen
    picture frame
    screen interaction (dials & buttons)
  how to communicate from phones to hub
  how to power: batteries/outlet
  how to connect to the right hub (iClicker)

how should the indicator lights work?
  indicators like battery, multiple lights at a time
  consistent polling

App Idea:
• If leave app while
  in class, a banner
  will come to top of screen
  that will give you option
  to continue inputting your
  engagement status

– professors able to set passcode for the
    duration of the class (50 min, 1.5 etc)
    after time expiration, students
    are kicked out of the app

could do an easy 4 digit passcode

alert when car lights are off at night

sleep watch to get out of bed

piezo electric material

Research Questions

① Bluetooth → b/c we are making own microcontroller, it must
    be handled diff. than if using Arduino
- How to code it? (TX and RX handling)
- Diff bluetooth chip?
- How to handle multiple device communication

② Is bluetooth best option?
- How does iClicker communicate?
    → how does it connect to specific room?
- Is large bluetooth connection from device ⇆ app good?

③ How to handle continuous polling of student engagement?

④ How will we power the...

- main device?

- band for teacher?

⑤ what is ~ cost of materials?

⑥ Vibration — what causes it? Is there a device that does it? Something in circuit?

⑦ How much storage will we need to store data?
- Does main chip have storage? Is it enough to hold code,
    question queue, etc?

- what chip storage options are there?

⑧ What is good size to fit screen, microcontroller, battery, etc.

IDEA

lights

HELP
ME
—Anon.

dial

button