

Progress Update 2

Introduction

Questions and updates in preparation for Client Meeting 2

Progress

- Tested 8x8 matrix LED – working with micro:bit
- Designed the footprint for all the components needed (180/90 degrees female header, 5x5 LEDs, driver, etc.) - PCB coming together well, planning to order first revision test PCB by Friday once design is confirmed.

Hardware Queries

- **Size:** Around A4 or bigger. Full size A4 PCB would be very expensive, around £200 the cheapest as we'd need soldering mask ideally, and also very wasteful. Better option would be smaller PCB inside 3D printed (or acrylic with 3d printed backing) case.
- **Buttons:** The ideas that were considered for the buttons are as follows:
Buttons in the front (middle)
Buttons in the front (bottom)
Buttons at the back with indicators in the front for students to see
- After the survey results, it seemed that most of the teachers would rather have the buttons in the front of the megabit. Retaining style of micro:bit important for allowing visually impaired students to use it as a learning tool.
- **LEDs:** 8x8mm (relatively low brightness), will students be able to see it?
We are considering the option of having LEDs at the back to make it easier for teachers. The results of the survey were 50/50 regarding that option.
Use two micro:bits, one at the back maybe as an alternative
- **Powering:** Use of a switch to power either 5 V USB or 2 AA (implemented via DPDT on-off-on switch).
For the 2AA batteries, a boost converter steps the voltage up from 3V to 5V for the LED driver. The driver works for 4.5-5.5V.
To power the micro: bit and edge connector the output of the boost converter or the 5V USB are fed into a 3.3V linear voltage regulator.

Survey Results

- **Built in speakers/headphone socket?** This will be low-quality sound as there isn't an AnalogOut pin. If we do it. we would need to sacrifice 2-3 pins.
- **Handle for people with disabilities?**
- **Stand for megabit?**