Breadboard Prototype

11/6/2024
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We start building our real circuit step by step, starting with testing each part of the circuit first and then adding them together to do the function. Note that the board we actually want, Seeed Studio XIAO ESP32C3, is still on delivery, so we have to use another board(Adafruit ESP32 Feather) to test the components first.
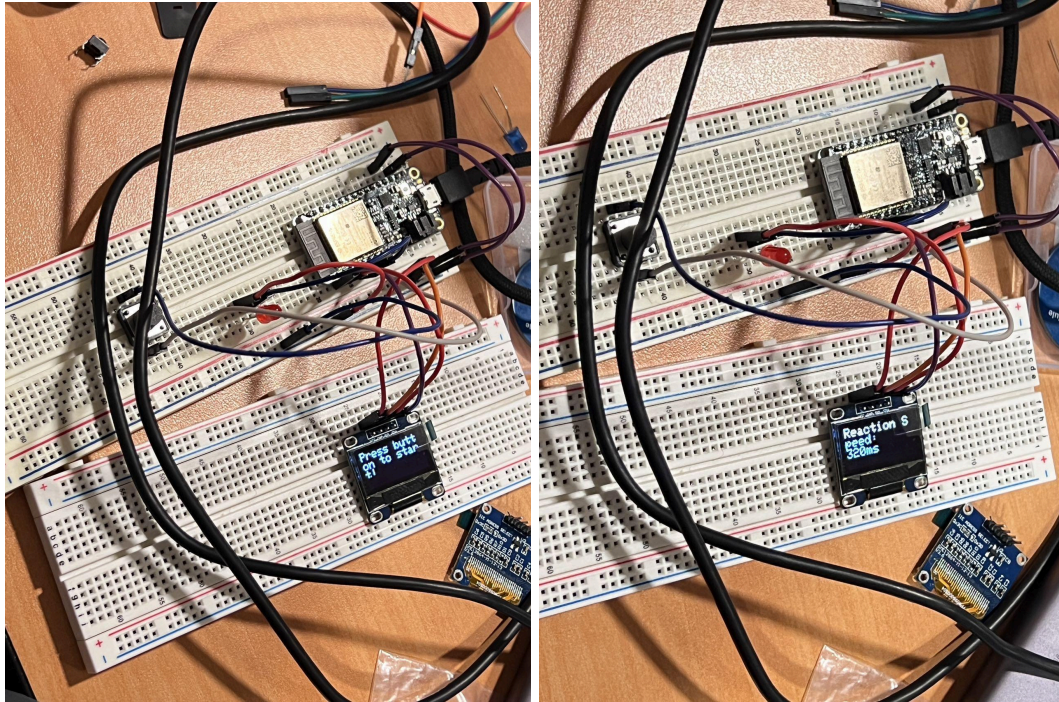
Testing: I2C connection screen

We first tried to test the screen and see if we could drive it correctly. This is harder than we thought because the cheap component we bought actually doesn't have any documentation support, so we need to try to find a library that will drive it correctly. After some testing we finally get it working, showing the correct text we want in the right place.

Testing: Buttons and LEDs

Then we want to test if the buttons are working properly. This took some amount of time because at first the LEDs somehow didn't work at all, ant buttons cannot react correctly. We wrote some small test program for this part and we got it working with a signal button and LED. In our plan we want at least 4 groups of them and we need to implement that latter.

Final test: Interact with each other

We set up one LED and one Button, and we want it to work like: press the button to start the game, after the LED turns on. Click the button immediately and then the screen can show your reaction time. This is only part of the final proposal. We will add up to 4 buttons and more functions later. We had some hard time on the code and testing, and we finally got it worth it at some point, but it is overall very buggy. We still need to consider a lot of timing details and button debouncing.

Summary and future plans

We get a small part of our product working, but it is just at the beginning. We will need to add a joystick to choose mode or do other interesting things and build more groups of LEDs and buttons. We'll keep working and try to make more progress next week.