

Build Instructions

First, set up your PocketBeagle.

1. Download the bone-debian-10.11-iot-armhf-2022-02-03-4gb.img.xz
2. With a programmable SD card inserted into your PocketBeagle, use an SD card flasher like [Etcher](#) to flash the PocketBeagle with the file.
3. Follow the instructions on [this page](#) to connect your PocketBeagle to the internet
4. Install libraries needed. Reference the [README](#) file for instructions on installing the required libraries and dependencies.
5. Set up the bread board:
 - Connect the ground (-) rails on the breadboard to the ground on the PocketBeagle (P1_16)
 - Connect both positive (+) rails on the breadboard to the SYS 3.3V on the PocketBeagle (P1_14)
 - Connect a positive rail on the half-sized breadboard to VOUT on the PocketBeagle (P2_13)
6. Integrate the yellow button
 - Attach the button to the breadboard and attach a ground connection, as well as a pull-up resistor (1k ohm) connected to ground. Use a jumper wire to connect the button to the GPIO pin (GPIO59, P2_2), and this connection should be in parallel with the pullup resistor. (Fig 1)



Fig 1. Doctor Push Button

7. Integrate the red button
 - Attach the button to the breadboard and attach a ground connection, as well as a pull-up resistor (1k ohm) connected to ground. Use a jumper wire to connect the button to the GPIO pin (GPIO 58, P2_4), and this connection should be in parallel with the pull-up resistor. (Fig 2)



Fig 2. Patient Tap Button

8. Integrate the LED

- Connect the LED to the PocketBeagle. Use a jumper wire to connect the anode (+, long lead) of the LED to the PocketBeagle GPIO pin (GPIO 23, P2_3), and connect the cathode (-, short lead) of the LED to ground. (Fig 3)

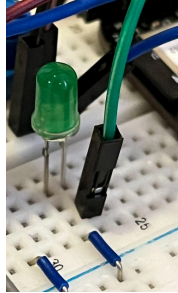


Fig 3. LED Indicator

9. Integrate the buzzer

- Attach the buzzer to the breadboard. The buzzer has 2 connections: positive and negative. Attach the negative connection of the buzzer to ground, and use a jumper wire to attach the positive connection of the buzzer to the PocketBeagle PWM pin (PWM 1, P2_1). (Fig 4)

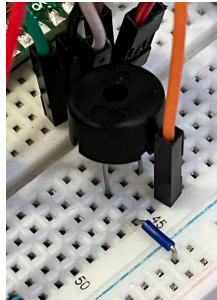


Fig 4. Buzzer Indicator

10. Integrate the 16x2 LCD Display (HD4478U)

- Solder male headers onto the LCD display to allow it to be attached on the breadboard.
- The LCD should be powered by connecting the pins VSS, RW, K to ground, and the pins VDD, V0, A to the VOUT (5V) positive power rail. V0 should be connected to the positive power rail through a variable resistor. The variable resistor can be tuned to alter the adjust the character's display contrast. Connections to the pocket beagle for data transmission involve connecting GPIO pins 60, 52, 57, 60, 89, 87 to pins RS, E, D4, D5, D6, D7 on the LCD, respectively. (Fig 5)

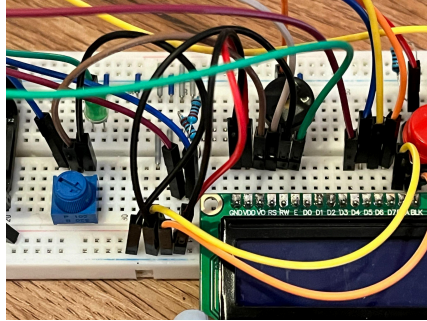


Fig 5. 16x2 LCD Display

You have now completed construction of the device. (Fig 6)

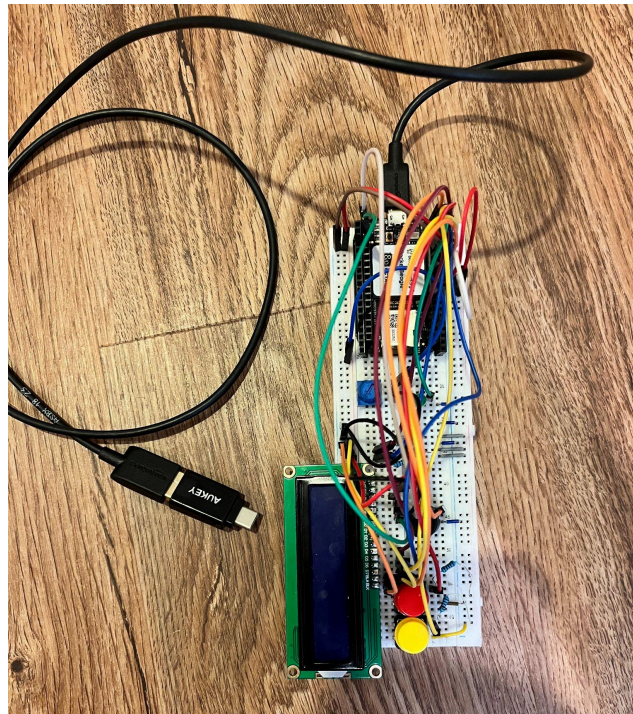


Fig 6. Complete assembled device