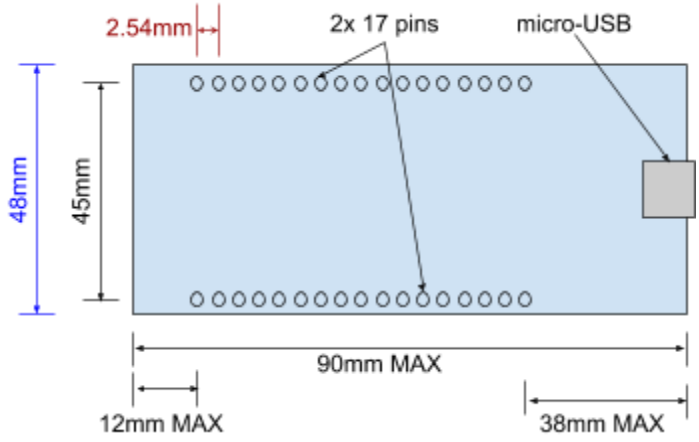
Overview

The AWS Playground4Robotics board will allow roboticists to quickly prototype various differential drive robots using AWS services.

Priority 0 Reqs996594219 996875655

- Max $12 BOM @ 100 Min Quantity
- ESP32
- Micro-usb connector
- CP210x or CH340 USB-to-UART chip
- PCD dimensions / configuration
    - Width - 48mm
    - Max length - 90mm
- Two 17-row pinouts to expose ESP32 pins to allow dev-board to be breadboard-able (34 pins total)
    - Width between each row - 45mm
- Layout configuration:
    - 

- VIN range (4.5 to 12volts)
    - 3.3v / 1A Vout regulator
- Accelerometer Sensor (the ADXL345 is sufficient)
- Motor Driver (Q: 2 channel) (L9110 single channel motor controller)
    - 2 post mounts for OA and OB L9110 pins - motor wire output (2 channels = 4 mounts total)
    - The IA and IB L9110 pins routed to 2 ESP32 GPIOs (2 channels = 4 GPIO's)
- Grove connectors to:
    - (Q: 8) ADC pins 32 to 39 (for analog sensors)
    - (Q: 2) I2C pins 21 and 22

    - (Q: 2) Wheel encoders GPIO 22 and 23
- Buttons
    - “Boot” - bootloader button to flash / erase the ESP32 (pulls GPIO0 low)
    - “Reset” - aka EN button to reset the ESP32
- LEDs
    - Red Power LED
    - Blue Status LED

Priority 1 Reqs

If BOM costs allow:

- OLED (same 128x64 as Playground4IoT)
- 5v / 1A Vout regulator (if Vin >= 6v)
- 4 corner M3 standoff mount holes
- Secure layer

Priority 2 Considerations

- Buttons - others?
- LEDs - others?