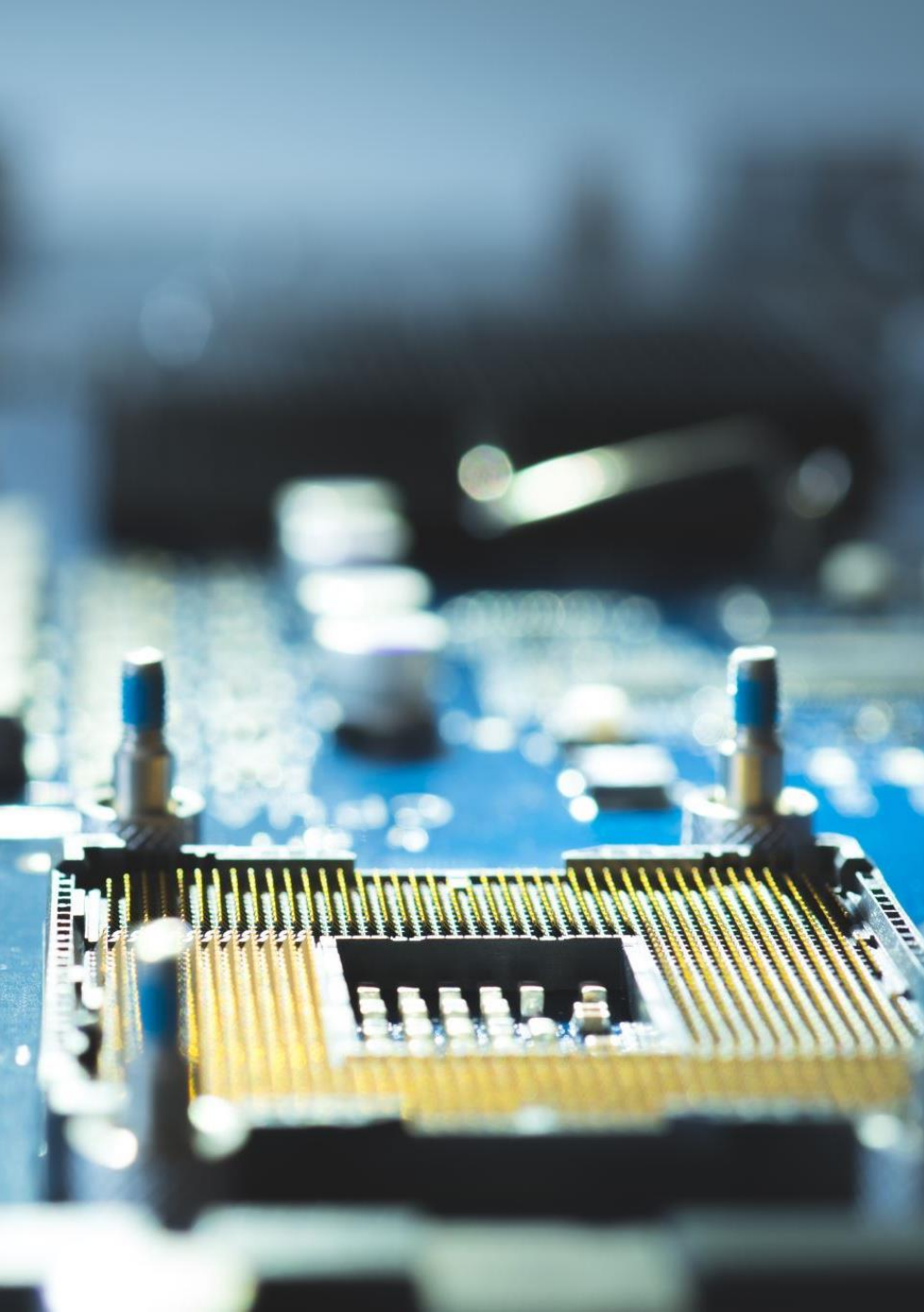


ESP32-CAM

IOT Security cam built and
deployed

By Michael Onyejekwe



ESP32 Dev Board

- OV2640 Cam

- This project utilizes the esp32 development board.
- There are many version on the market however for this project I used the OV2640 cam board
- This board utilizes ide/language software such as Arduino/C/C++ for firmware programming
- I opted in for using arduino as it is recommended for this board for seamless development

Esp32 Dev Board(Front + Back)



Connectivity? - Method 1

- Method 1: You can connect to the dev board by soldering onto the specific pins and connecting to the corresponding pins on an external development usb board



Connectivity? - Method 2

- Method 2: you can get a baseboard that will connect directly to the esp32 cam board and plug in a micro-usb or usb-c directly
- I used method 2 for this project for simplicity and for solar connections specified later in the presentation

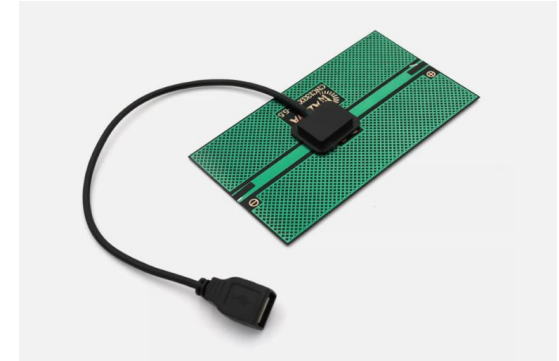


Complete Board

- Using method 2 you should have a complete board as shown ready for powering and programming.



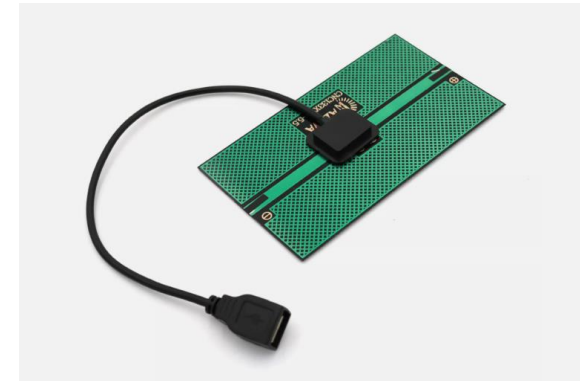
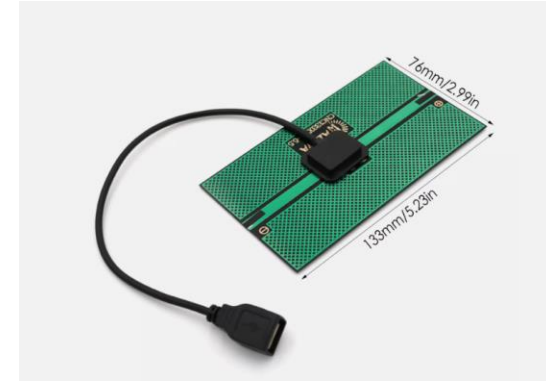
POWER?



- To power the board without having to change a battery constantly I opted for solar panels + 18650 battery system.
- I used a solar panel + usb extender(splitter) + 18650 battery usb holder to power the board and keep it powered in case of a minimal sunlight situation



Solar Panel Front + Back +Dimensions



1860 Battery Holder + USB Port (DFR0969)

- You can get a used battery holder and solder wires to the terminal and solder them onto a stripped usb cable. To save cost.
- However, for this project I opted for something simple. Which is a battery holder with a usb port already pinned onto the holder.
- This is sold by digikey(DFR0969)



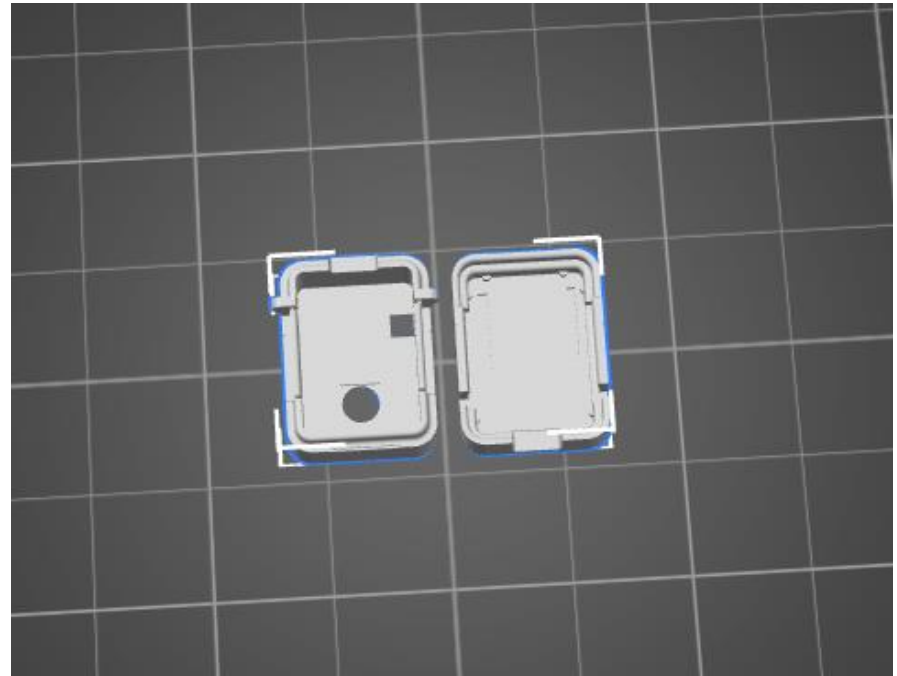
USB Extender- 10 - 15Ft

- I used a usb extender + splitter(*USB A TO MICRO USB DUAL*) to connect the solar panel, batteries, and board
- I opted in for this to make repairs easy and hassle free in the future if necessary
- The Type of USB splitter you use will be based on how you run your wiring it's a matter of personal preference.



Casing

- For the casing of the board, I sourced a 3D stl file online and edited using anycubic slicer(slicer software)
- You can also find/create your own casing it's all about being creative



Thank You!!

- If you stayed until the end ***thank you!!***
- I have other projects documented/to document.
- **THE ARDUINO FIRMWARE FOR THIS PROJECT IS ON MY GITHUB ALONG WITH THIS PRESENTATION!!**