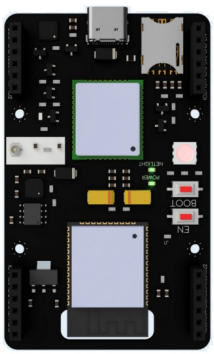
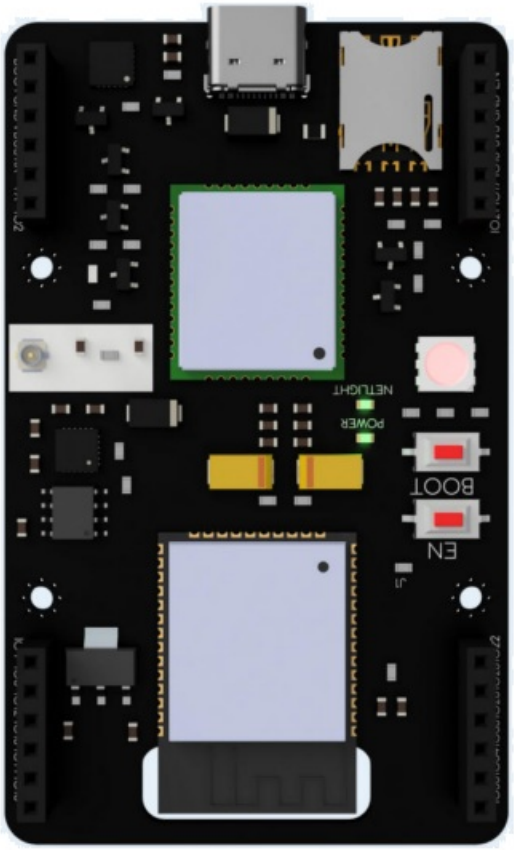


botland BASE V1 Device Prototype Development Board User Guide

botland BASE V1 Device Prototype Development Board



Contents

sanaullah tasks

WELCOME

The Micromesh Base V1 developer board is a modern tool for engineers and programmers to create advanced electronic projects. The main feature of the board is the use of the ESP32 chip, which is one of the most popular chips for creating projects using wireless networks (Wi-Fi and Bluetooth).

This makes the board ideal for creating Internet of Things (loT) devices and other applications requiring a wireless connection. Using Micromis is facilitated by a built-in USB-UART converter, which allows the device to be programmed using a USB-C cable. A USB socket built into the device also allows powering the device's components and additional components connected to the platform.

The platform is equipped with a Quectel M65 modem, which enables connectivity to cellular networks and data transmission over GSM networks.

The modem has an integrated antenna connector, so it can be easily connected to an external antenna for better connection quality.

The device also has an addressable LED. which can be software-controlled and used to visualize the device's status or to create lighting effects. In addition, it has been equipped with the MPU6050 chip, which can measure acceleration and rotation in three axes. allowing the creation of motionsensing designs.

The board has also been equipped with the LM75 temperature sensor, which allows the measurement of ambient temperature with an accuracy of 0 .5 degrees Celsius. This is useful for applications that require temperature measurement, such as air-conditioning systems and measuring devices.

The Micromis Base V1 also features female goldpin leads, which allow the connection of external peripherals and Micromis overlays to expand the capabilities of the board itself.

The platform is also equipped with a number of protections, including overvoltage, short-circuit, over-temperature and over-current protection from the USB port, making it a suitable tool for electronics beginners.

HAVE FUN WHILE USING THE MICRDMIS BASE V1!

MICROMIS BASE V1: QUICK ST ART

Using the Micromis Base V1 platform is extremely easy! To get started with your board, you need to follow the few steps below:

1. Unpack your Micromis Base VI board from the packaging
2. Insert an active nanoSIM card into the SIM card slot
3. Connect the GSM antenna to the U.FL connector
4. Connect one side of the USB Type C cable to the Micromis Base V1 board and the other to the computer
5. Install the environment on your computer in which you program the board
6. Install drivers for CP2102 chip from www.silabs.com/developers/usb-to-uart-bridge-vcp-drivers
7. Install data packages for ESP32 chips.
8. Select the “ESP32 Dev Module” board
9. Upload your first program to the Micromis Base V1 board

If you have previously used boards with an embedded ESP32 chip in your development environment, you probably won’t need to do any additional configuration, and the Micromis Base V1 board will work as soon as you connect it to your computer.

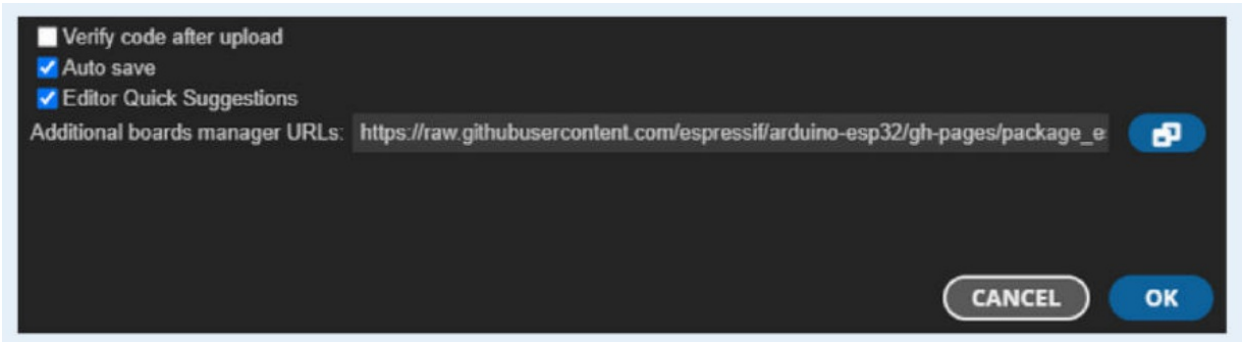
If you don’t yet have a programming environment with which you will program the Micromis Base V1 board, or you don’t know how to install data packages for boards with ESP32 chips, then on the following pages we will discuss the two most popular environments and how to get the Micromis Base V1 board operable with them.

MICROMIS BASE V1: USING WITH ARDUINO IDE

Arduino IDE is the most popular environment used mainly for hobby purposes. Due to the ability to import additional boards and the extremely large community of users of this IDE, many owners of boards with the ESP32 chip have decided to use this environment.

If you do not have the Arduino IDE environment installed then you need to download it from the link below and install it on your computer, preferably download version 2.0 or later.
https://www.arduino.cc/en/software

After installing the Arduino IDE environment, you need to click:
File -> Preferences and in the “Additional boards manager URLs” field enter the following link, this is a link to the official package from the manufacturer of the ESP32 chip:
https://raw.githubusercontent.com/espressif/arduino-esp32/ghpages/package_esp32_index.json



After pasting the board manager link, you need to click on the “OK11 button to exit the environment preferences. Now you need to click in turn:

Tools -> Board -> Boards Manager and in the board manager type “esp3211 into the search engine, after a while you should see the package “esp32 by Espressif Systems11 , at the bottom of the box you need to click 11Install 11 , the latest version of ESP32 chip-equipped board packages will automatically install. If you don’t see tile packages after adding the package link to the 11Additional boards manager URLs11 field and typing the phrase “esp3211 in the tile manager search engine, it’s a good idea to restart the whole environment.

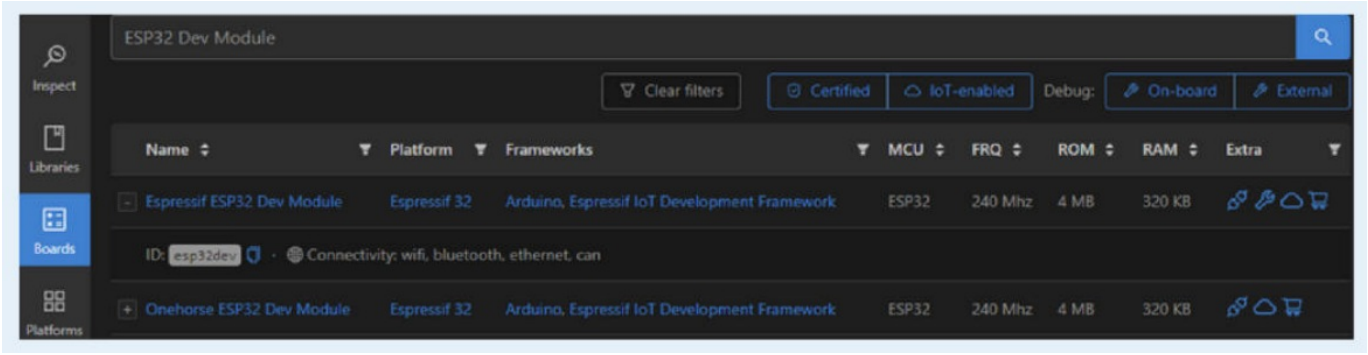
MICROMIS BASE V1: USING WITH VISUAL STUDIO CODE

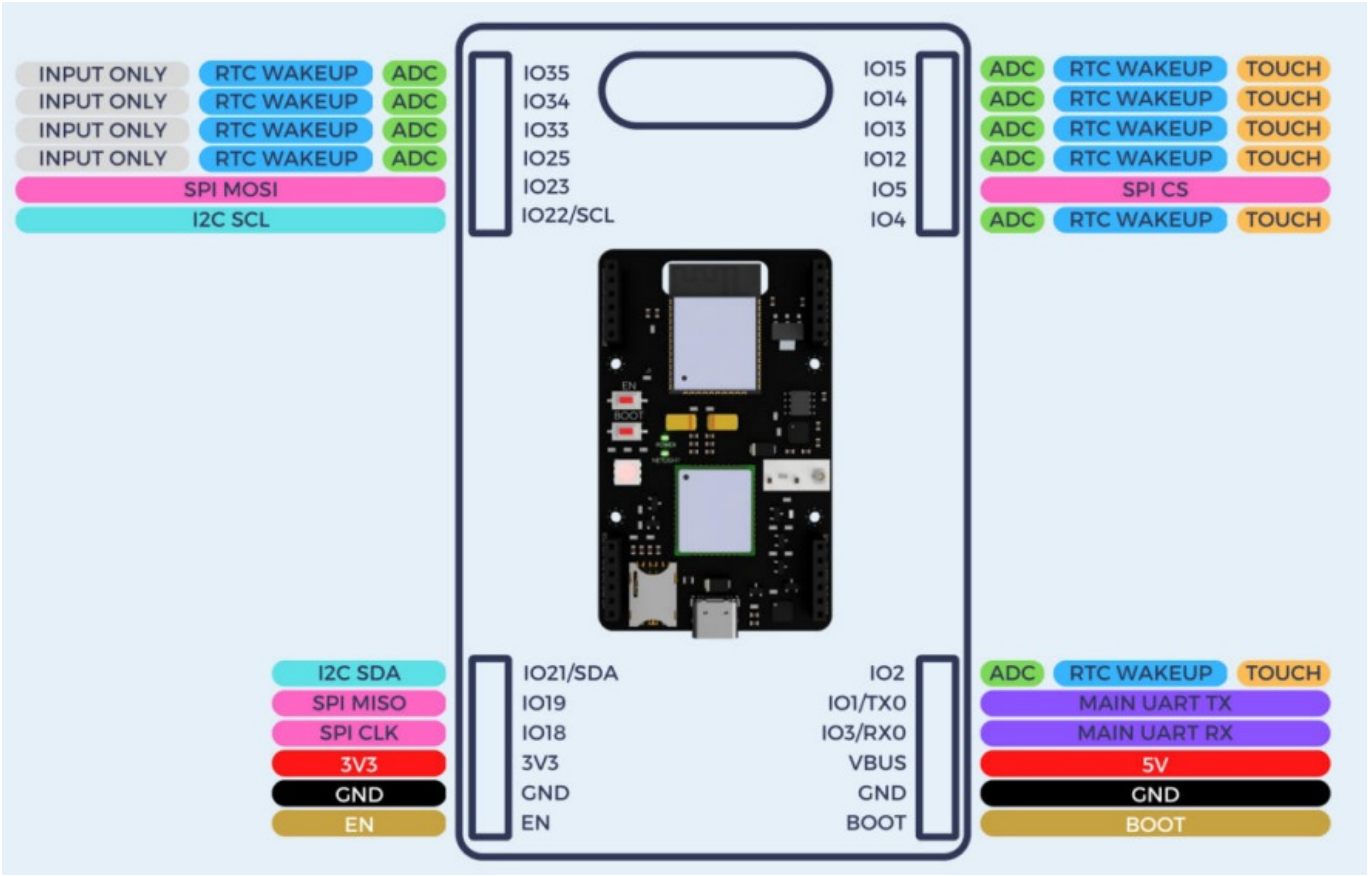
The second most popular environment for programming boards equipped with ESP32 chips is Visual Studio Code with the Platform IO IDE extension. The Platform IQ extension allows us to work comfortably with a huge number of development boards and standalone chips, which we can program in many frameworks. To use the capabilities of this environment, you must first download and install Visual Studio Code from the link:
https://code.visualstudio.com/

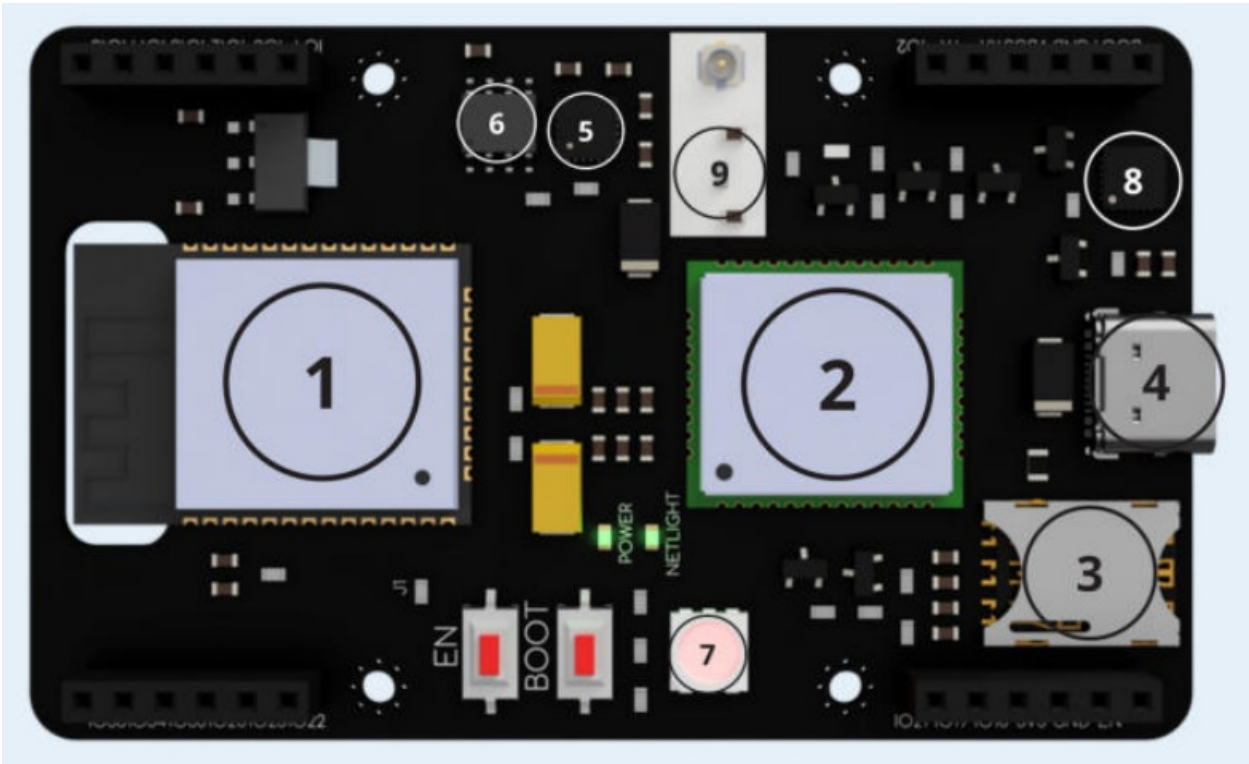
In addition, you should download and install Python 3.8.5 or later from the link:
https://www.python.org/downloads/

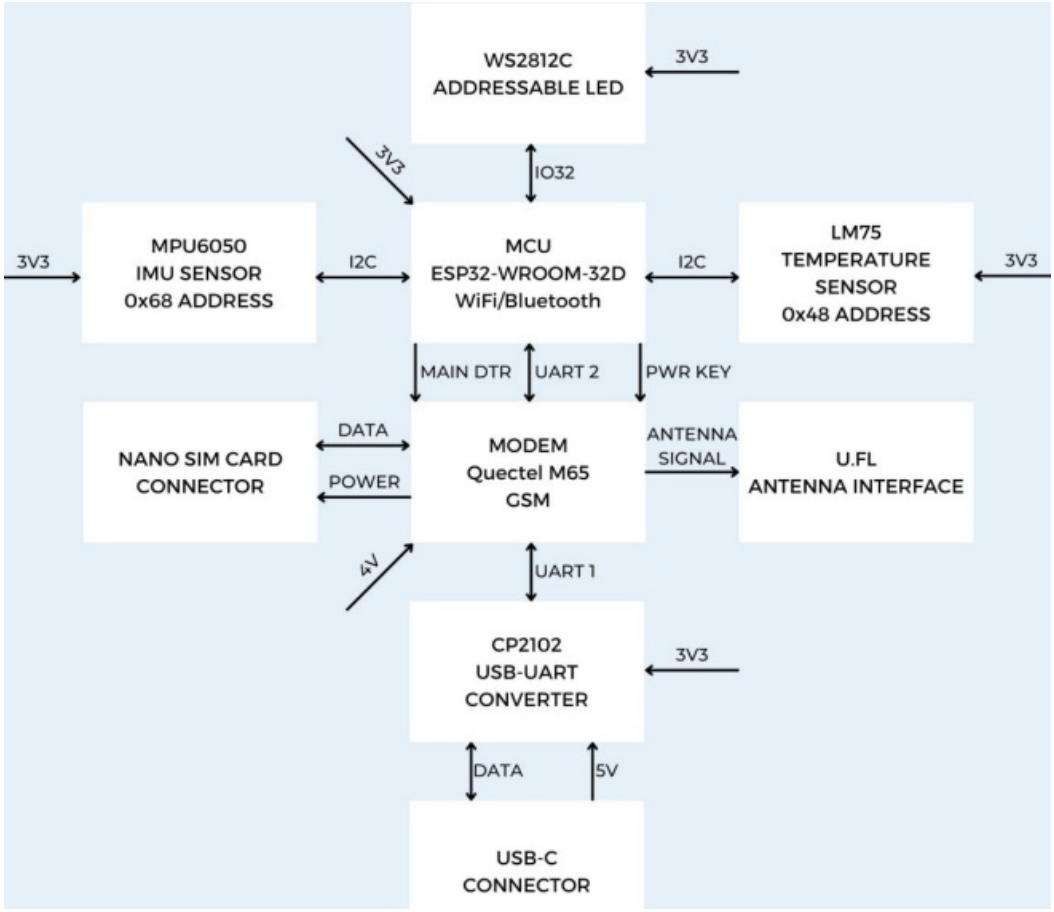
Once you have installed the Visual Studio Code environment and Python, click on View-> Extension in Visual Studio Code, an extension browser window should open on the left. In the extension browser you need to type 11PlatformIO IDE11 , when you click on the item with the name “Platform IO IDE” a window will open with the details of the extension, now you just need to click 11 Install11 and the extension will appear download and install itself.

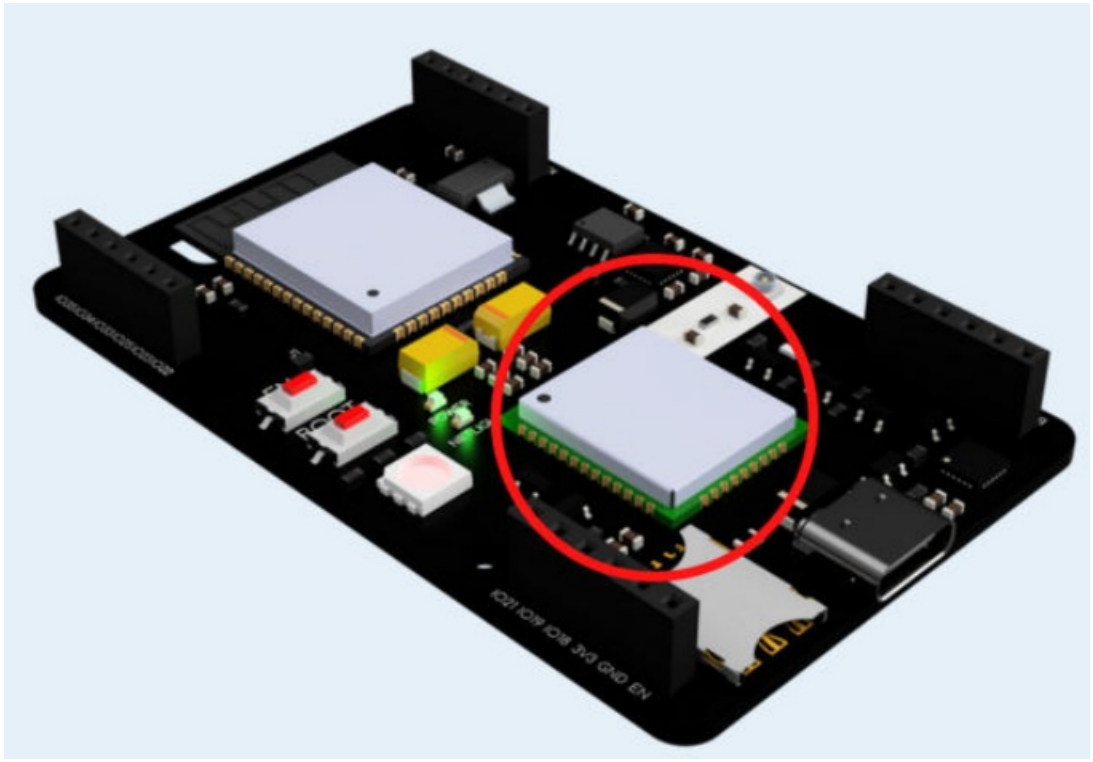
After installing the extension. we need to click on the Platform IO icon located on the tool bar on the left, and then click on the home icon on the bottom bar. which will bring up the extension’s home page. Once you are in the extension’s home page, you need to click on “Boards” and type 11ESP32 Dev Module” in the tile search box. The board you are interested in will itself appear below the search box. When you create a project. all you have to do is copy the ID of the specific board and paste it into the project, or when generating the project, select the board you will program as “ESP32 Dev Module”.

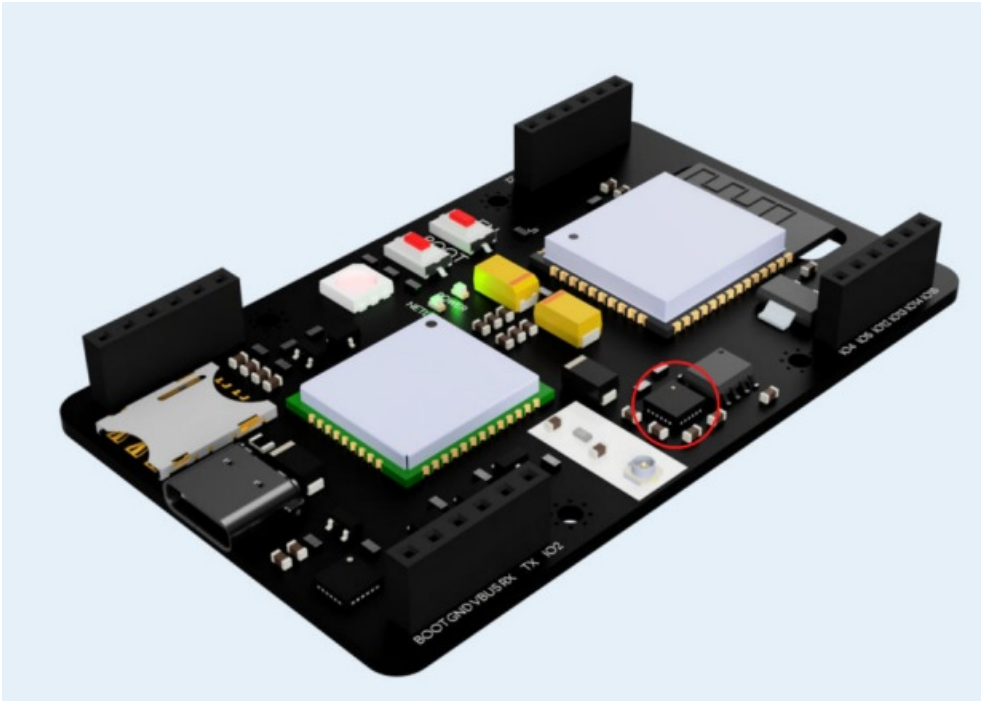


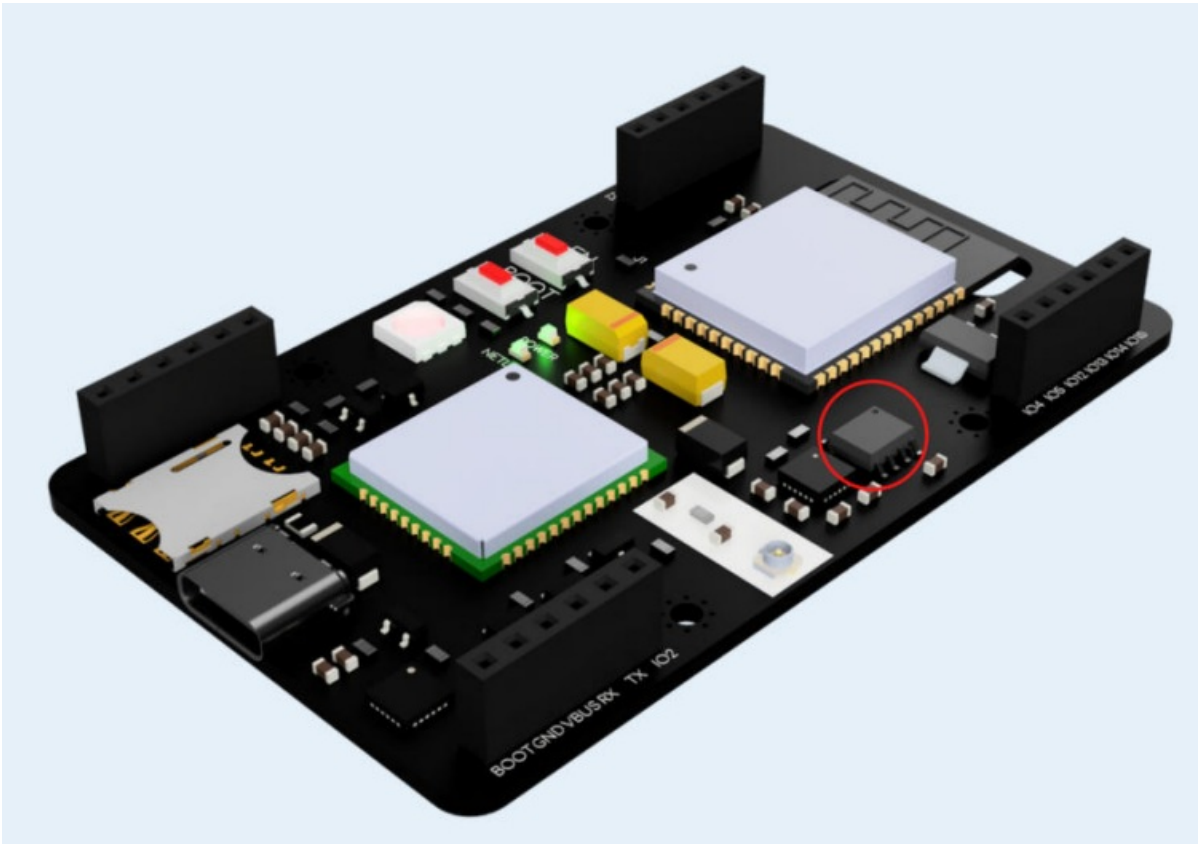

INPUT ONLY RTC WAKEUP ADC
INPUT ONLY RTC WAKEUP ADC
INPUT ONLY RTC WAKEUP ADC
INPUT ONLY RTC WAKEUP ADC
SPI MOSI
I2C SCL
IO35
IO34
IO33
IO25
IO23
IO22/SCL
IO15
IO14
IO13
IO12
IO5
IO4
ADC RTC WAKEUP TOUCH
ADC RTC WAKEUP TOUCH
ADC RTC WAKEUP TOUCH
ADC RTC WAKEUP TOUCH
SPI CS
ADC RTC WAKEUP TOUCH
I2C SDA
SPI MISO
SPI CLK
3V3
GND
EN
IO21/SDA
IO19
IO18
3V3
GND
EN
IO2
IO1/TX0
IO3/RX0
VBUS
GND
BOOT
ADC RTC WAKEUP TOUCH
MAIN UART TX
MAIN UART RX
5V
GND
BOOT

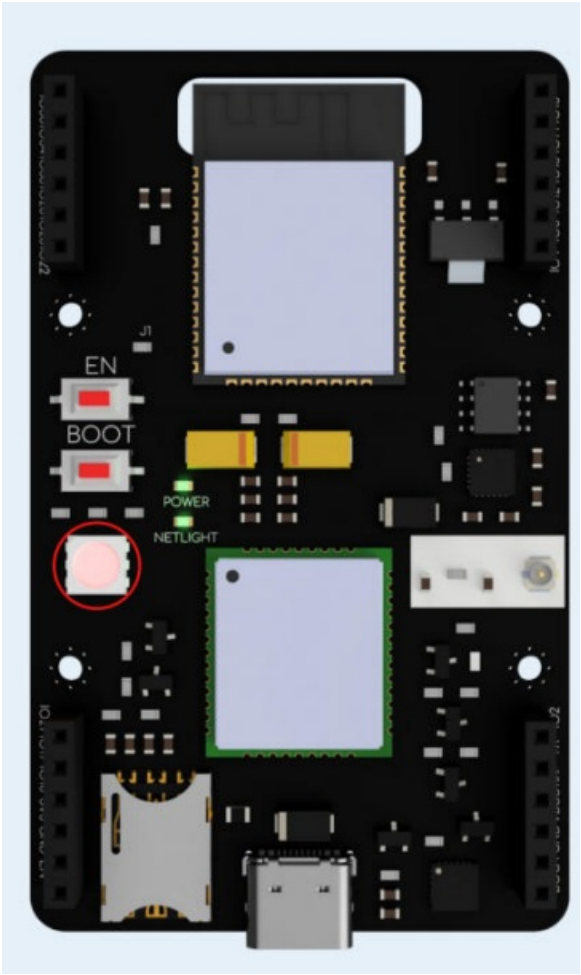

1
2
3
4
5
6
7
8
9
POWER
NETLIGHT
EN
BOOT

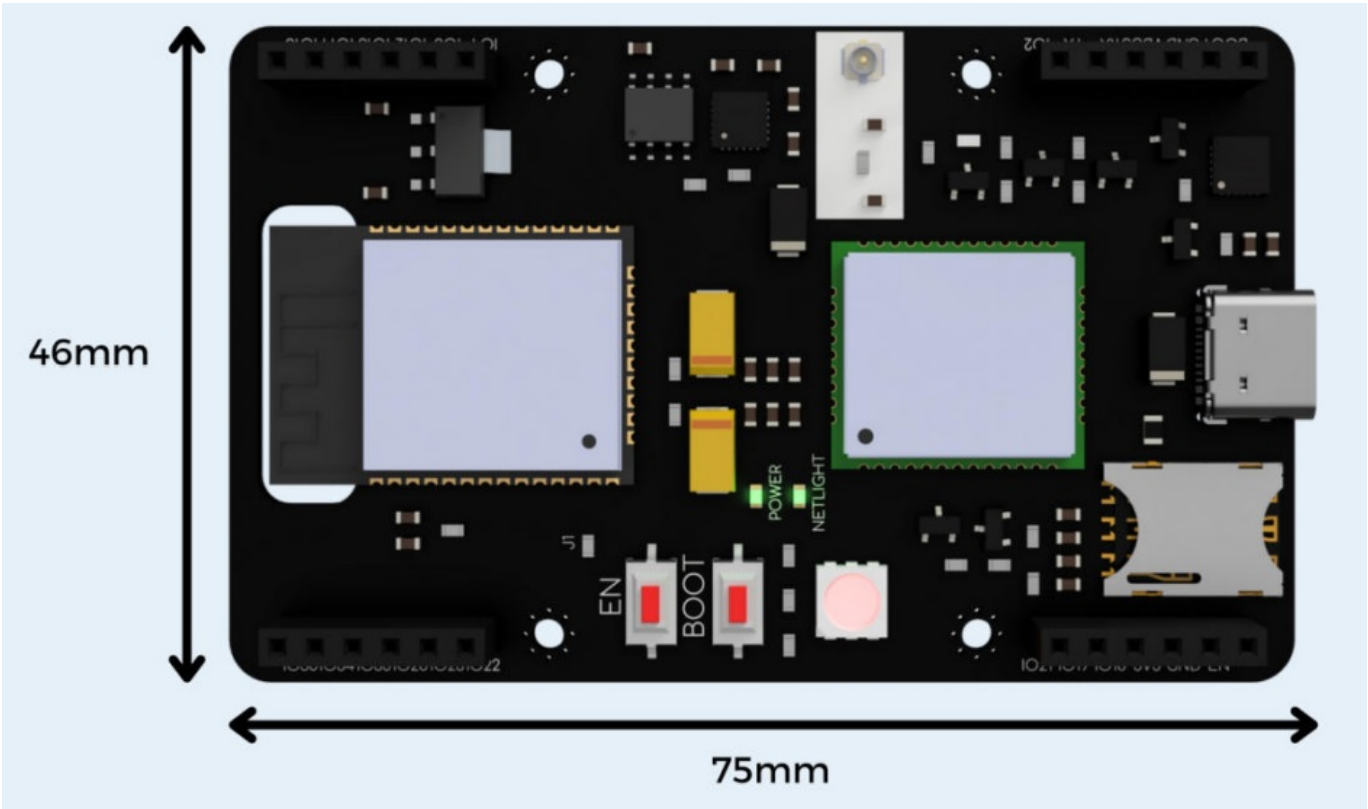

WS2812C
ADDRESSABLE LED
3V3
3V3
IO32
3V3
MPU6050
IMU SENSOR
0x68 ADDRESS
I2C
MCU
ESP32-WROOM-32D
WiFi/Bluetooth
I2C
LM75
TEMPERATURE
SENSOR
0x48 ADDRESS
3V3
MAIN DTR
UART 2
PWR KEY
NANO SIM CARD
CONNECTOR
DATA
POWER
MODEM
Quectel M65
GSM
ANTENNA
SIGNAL
U.FL
ANTENNA INTERFACE
4V
UART 1
CP2102
USB-UART
CONVERTER
3V3
DATA
5V
USB-C
CONNECTOR

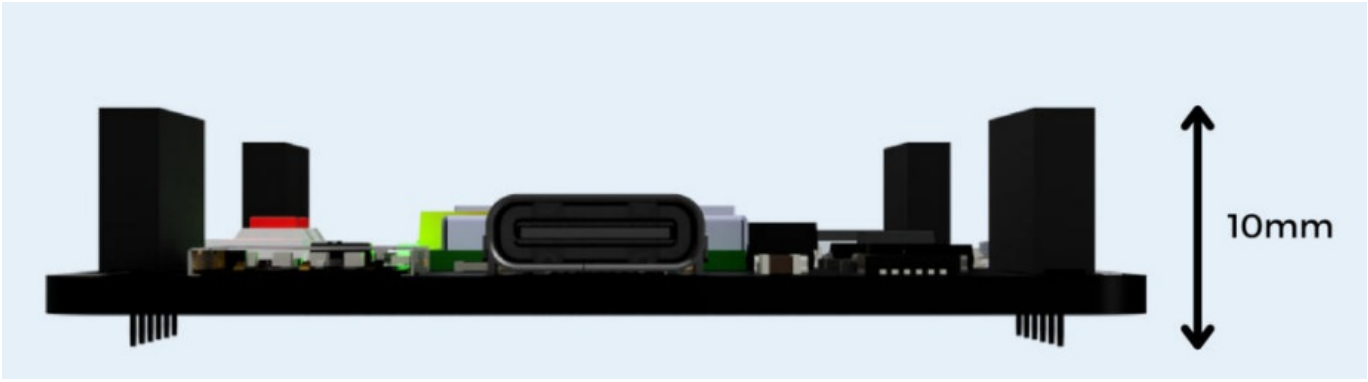



BOOT GND VBUS RX TX IO2


BOOT GND VBUS RX TX IO2


J1
EN
BOOT
POWER
NETLIGHT

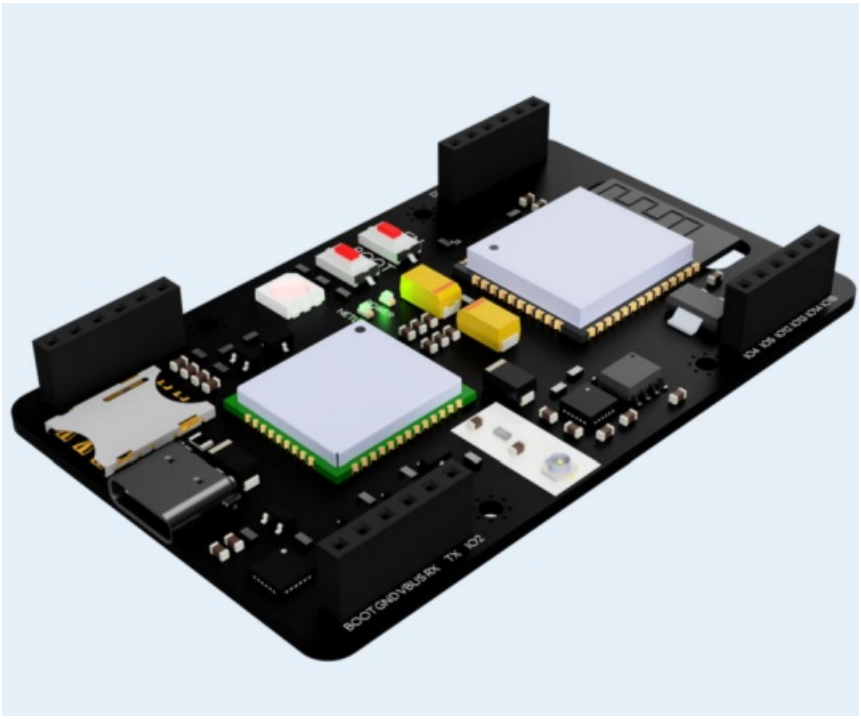

46mm
75mm
POWER
NETLIGHT
J1
EN
BOOT




```
THE MODEM IS CONNECTED TO THE NETWORK:
Orange


NETWORKS SEARCHING
.....................................................................................................
AVAILABLE NETWORKS WITH DETAILS:
(2, Orange , Orange , 26003 ),(1, Plus , PLUS , 26001 ),(1, P4 , Play , 26006 ),(1, T-Mobile.pl , TM PL , 26002 ),,(0-4),(0-2)
```

```
DATA SENT BY USER: AT+COPS=?
DATA SENT BY MODEM:
AT+COPS=?
DATA SENT BY MODEM:

+COPS: (2,"Orange","Orange","26003"),(1,"Plus","PLUS","26001"),(1,"P4","Play","26006"),(1,"T-Mobile.pl","TM PL","26002"),,(0-4),(0-2)

OK
```

```
- GREEN - a command that sets the light color of the diode to green
- BLUE - a command that sets the light color of the diode to blue
- PINK - a command that sets the light color of the diode to pink
- YELLOW - a command that sets the light color of the diode to yellow
- PURPLE - a command that sets the light color of the diode to purple

-----------------------------------------------------------------------------------------

DATA SENT BY USER: RED

COLOR SET TO:255,0,0

DATA SENT BY USER: BLUE

COLOR SET TO:0,0,255

DATA SENT BY USER: YELLOW

COLOR SET TO:255,232,0

DATA SENT BY USER: CLEAR

COLOR SET TO: CLEAR

DATA SENT BY USER: PURPLE

COLOR SET TO:176,66,255

DATA SENT BY USER: COLOR:231,88,124

COLOR SET TO: 231,124,88
```



Made by:
DEVICE
PROTOTYPE

Documents / Resources

	botland BASE V1 Device Prototype Development Board [pdf] User Guide BASE V1 Device Prototype Development Board, BASE V1, Device Prototype Development Board, Prototype Development Board, Development Board, Board

References

- User Manual