

# Setup

Here are the first-time setup instructions for the Soiology Monitor:

1. Power on the Raspberry Pi 4B by connecting it to a power source.
2. Connect your smartphone to the same Wi-Fi network as the Raspberry Pi 4B.
3. Download the Blynk app from the App Store or Google Play Store and create an account.
4. In the Blynk app, create a new project and select the "Raspberry Pi Pico" device. Once created, Blynk will generate an authentication token. Copy or make note of this token.
5. Connect the Raspberry Pi Pico to your computer via USB.
6. Open the Thonny Python IDE on your computer and open a new Python file.
7. Copy the following Python code into the file:

```
import blynklib
import serial
import time

BLYNK_AUTH = 'YOUR_AUTH_TOKEN_HERE'
ser = serial.Serial('/dev/ttyACM0', 9600) # adjust port and baud rate as needed
blynk = blynklib.Blynk(BLYNK_AUTH)

@blynk.handle_event('read V1')
def read_soil_moisture(pin):
    time.sleep(0.2)
    moisture = ser.readline().decode('utf-8').rstrip()
    blynk.virtual_write(1, moisture)

while True:
    blynk.run()
```

8. Replace "YOUR\_AUTH\_TOKEN\_HERE" with the authentication token generated by Blynk in Step 4.
9. Save the Python file and run it. This will allow the Raspberry Pi Pico to communicate with the Blynk app on your smartphone.

Congratulations! Your soil health monitor is now ready to use.

Live readings from the soil sensors will now be displayed on the monitor's 3.5 inch display and on the Blynk app on your smartphone.

Place the sensors in your plant's soil and monitor moisture, temperature and humidity levels to help keep your soil and plants healthy!