AWaDH
Agriculture and Water
Technology Development Hub

Interfacing of LIS3DH Sensor on Mobile App

What will you learn from this module:

We will be able to find the position and the value of x-axis, y-axis and z-axis with the help of Node having LIS3DH Sensor.

Requirements:

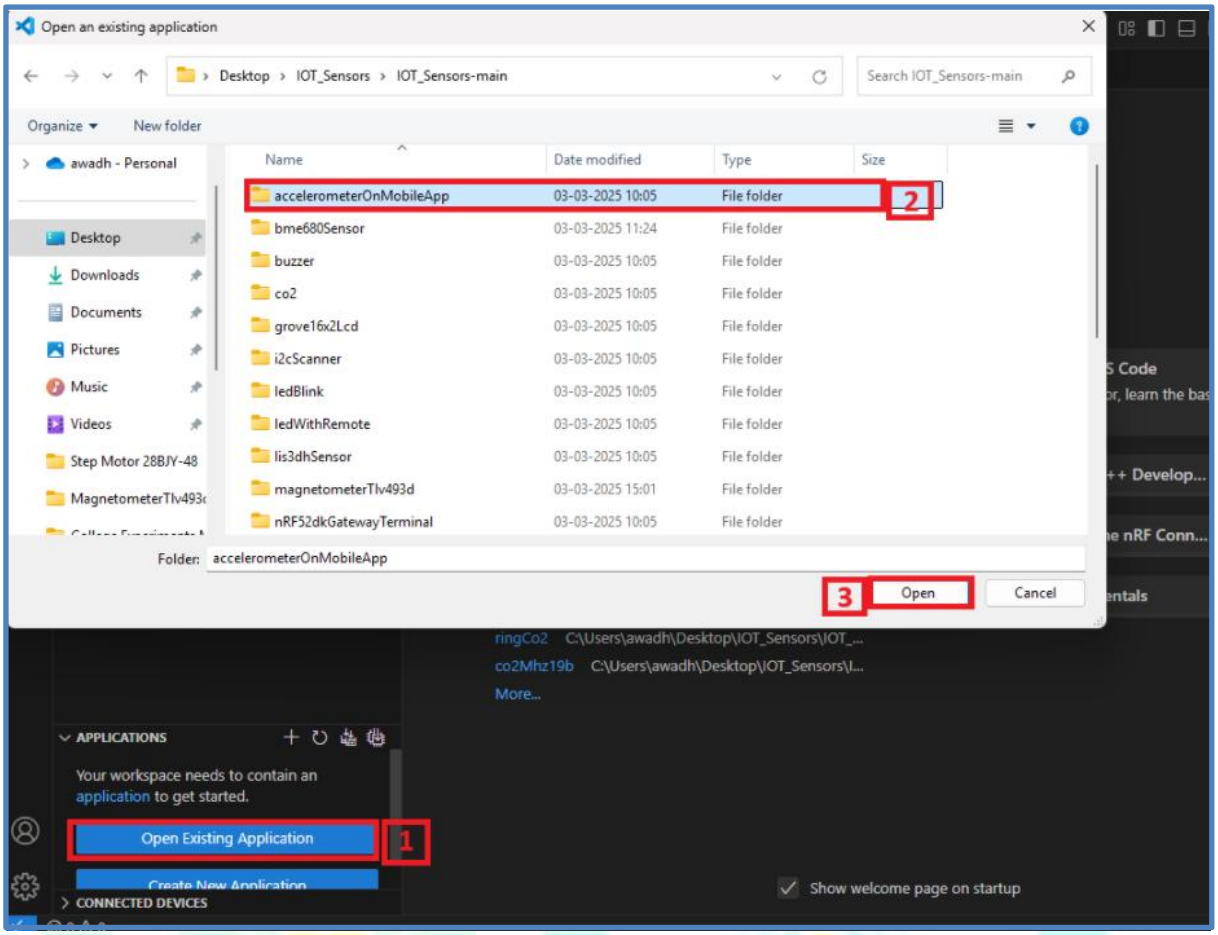
- nRF Command line tool.
- Visual studio code.
- USB cable.
- Flashing tool.
- LIS3DH on Node Sensor.
- BLE Sense Mobile App

Prerequisites:

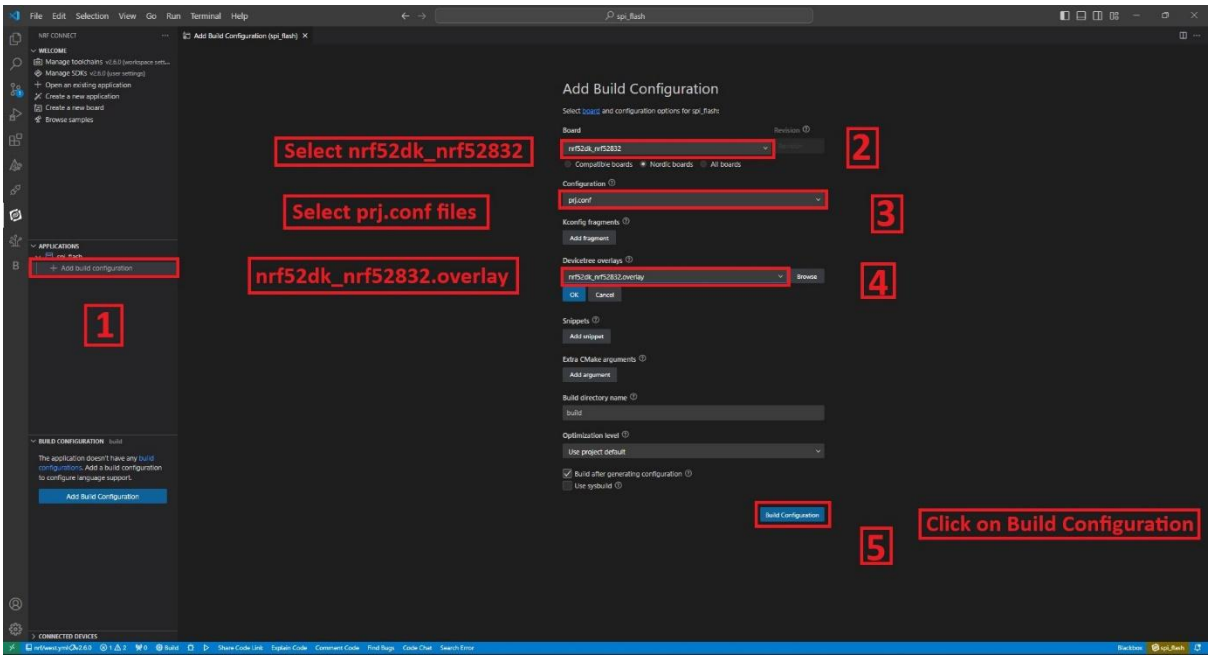
- Basic knowledge of C/C++
- Basic knowledge of communication protocol.
- Basic project setup.

Setup and Configuration

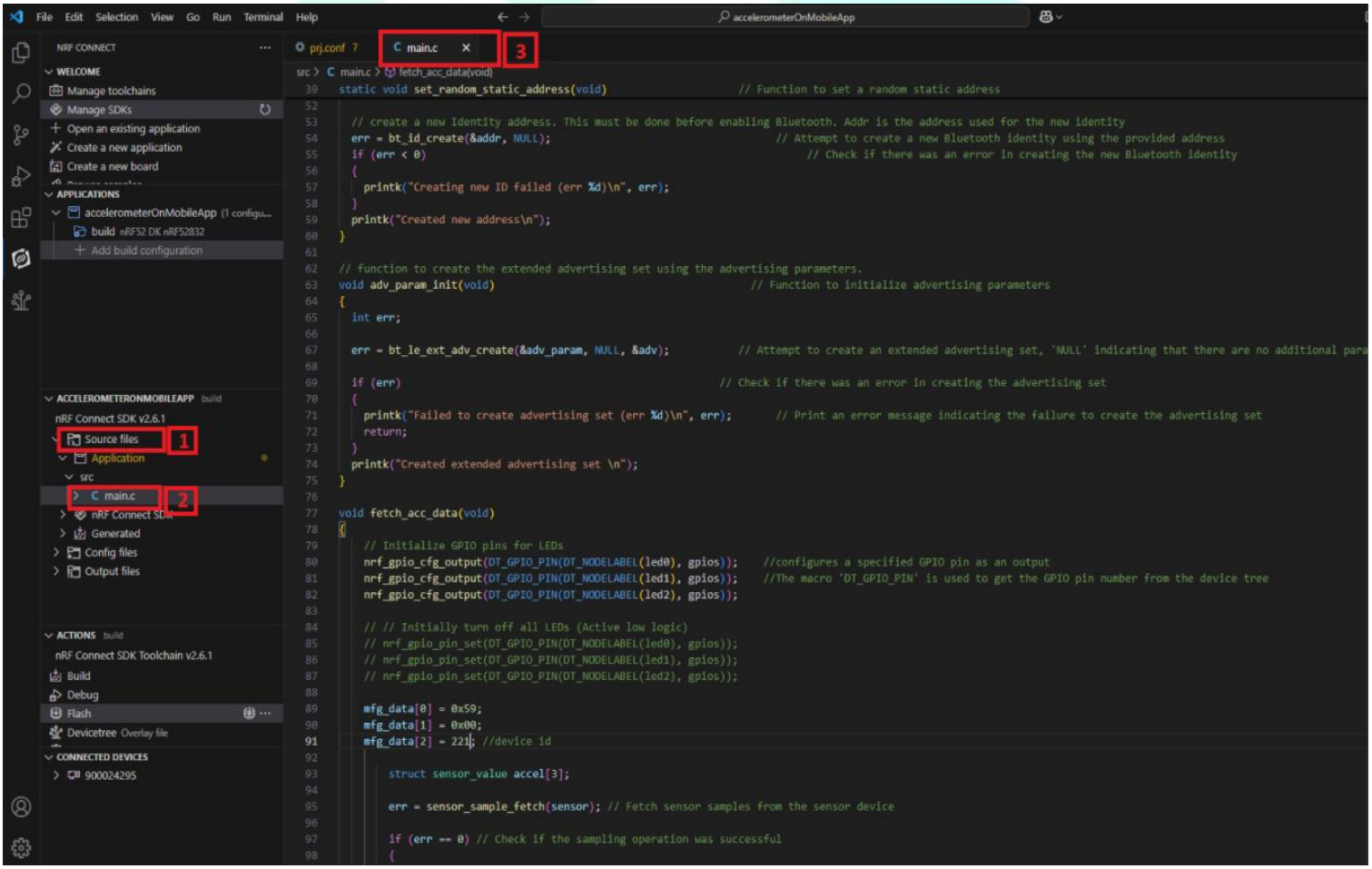
- Open VS Code and click on **Open Existing Application [1]** > click on **accelometerOnMobileApp [2]** > **Open [3]** as shown in the picture below.



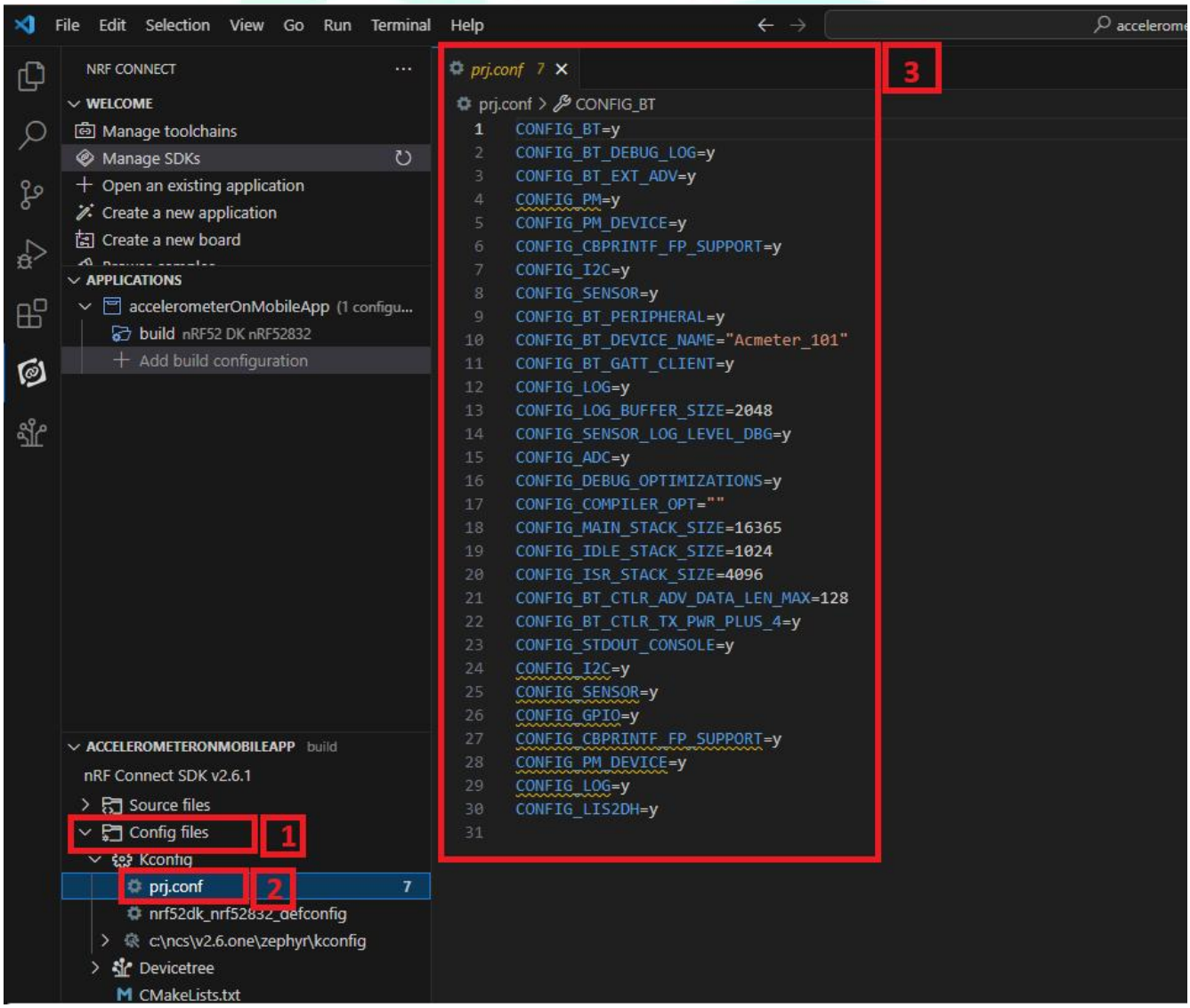
- Click on **Create new build configuration [1]**. Here you can change the board version, if you are using nRF52832, then select **nrf52dk_nrf52832 [2]** or you can change from dropdown menu for another version like nRF52833 etc.
- Click on the Configuration and select **prj.conf [3]** from dropdown menu and then click on the devicetree overlay & select **nrf52dk_nrf52832.overlay [4]**.
- Then click on the **Build Configuration [5]** as shown below in the picture.



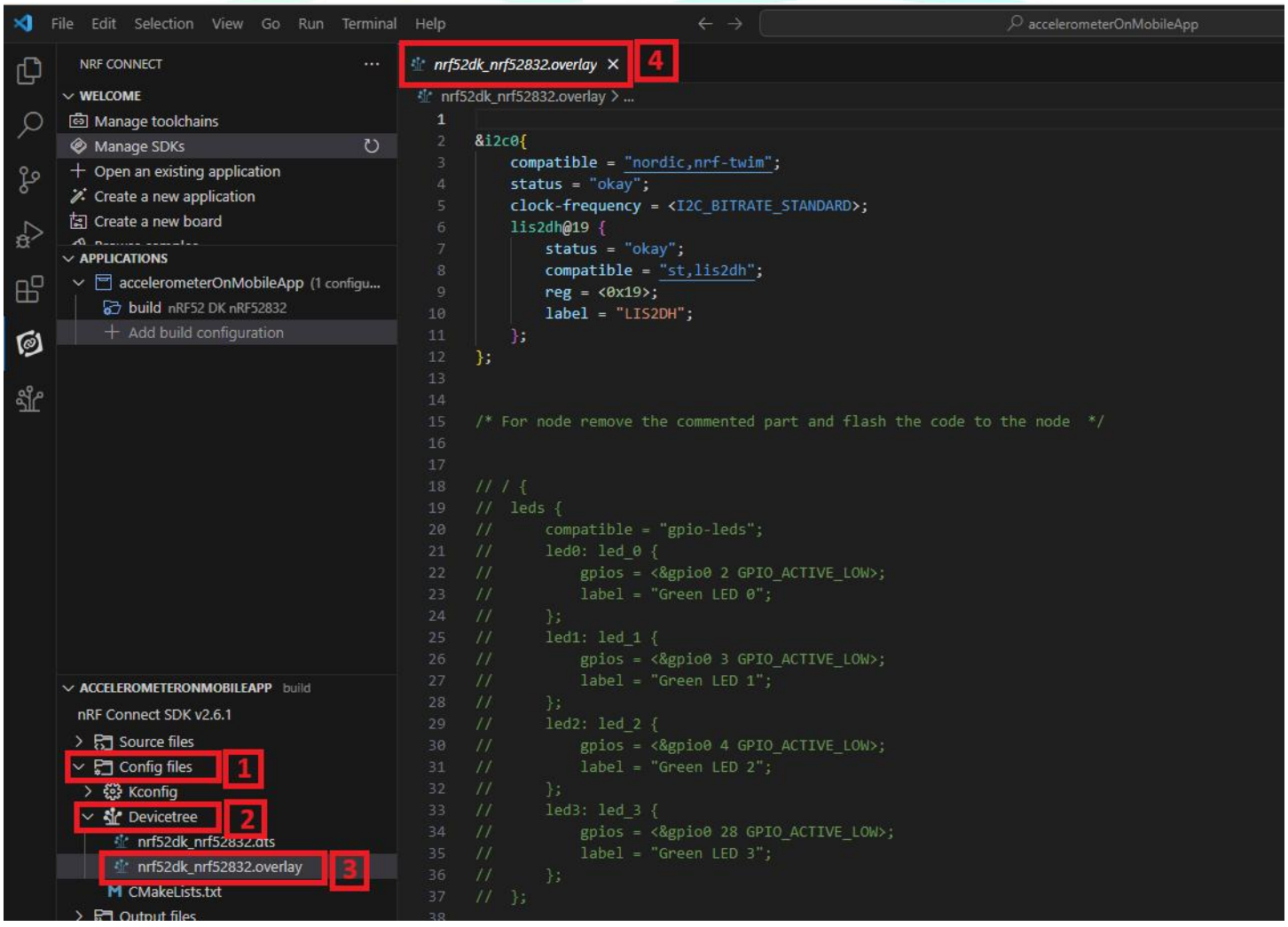
- Go to source file, click **source file [1]** > click on **Application** > click on **src** > click on **main.c [2]**.
- By clicking on **main.c** file and you will see the code on your screen **[3]**.



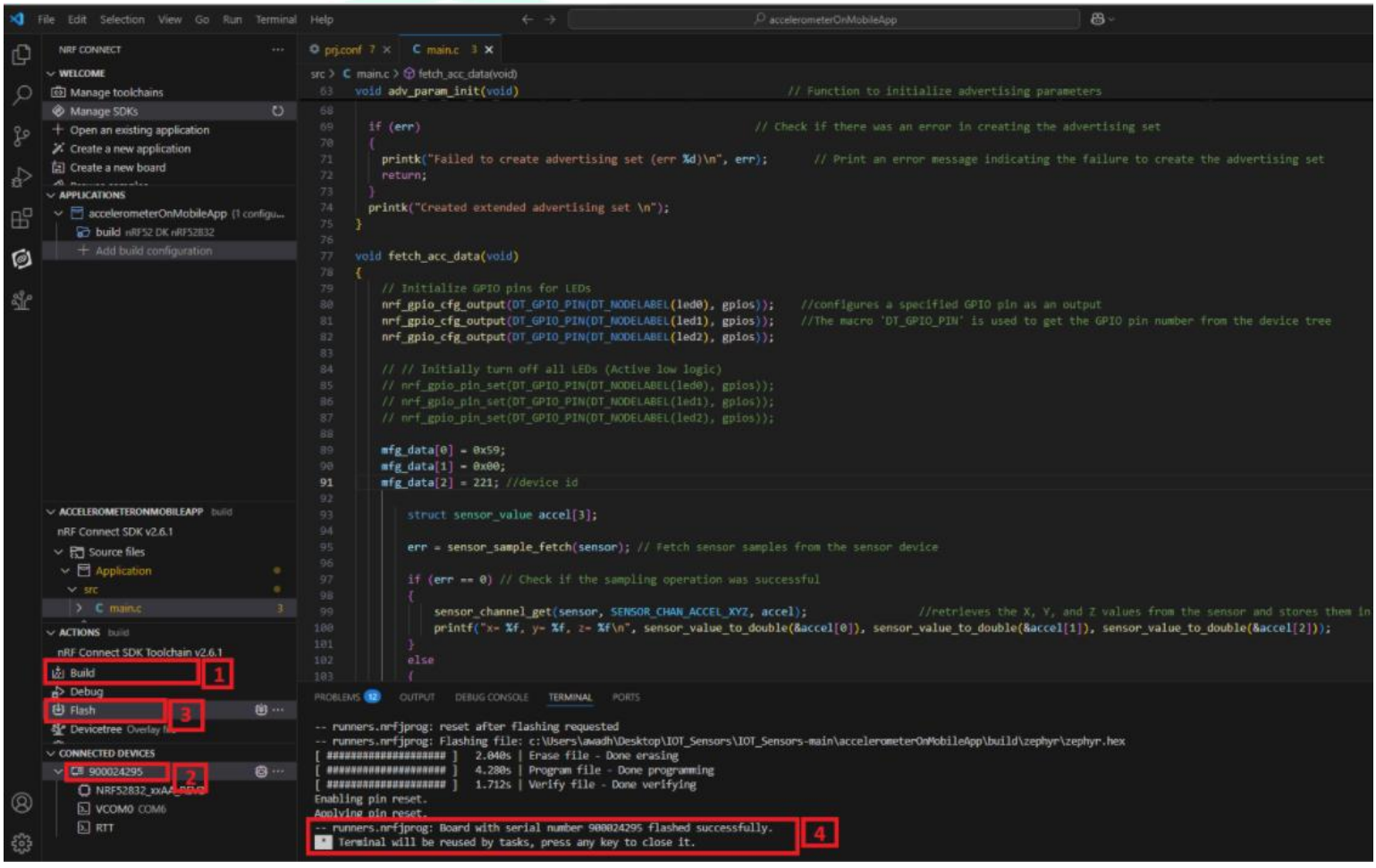
- To configure the prj configuration, click on **Config files [1]** > click on **Kconfig** > click on **prj.cong [2]**.
- The prj configuration will appear on your screen **[3]** as shown in the picture below.



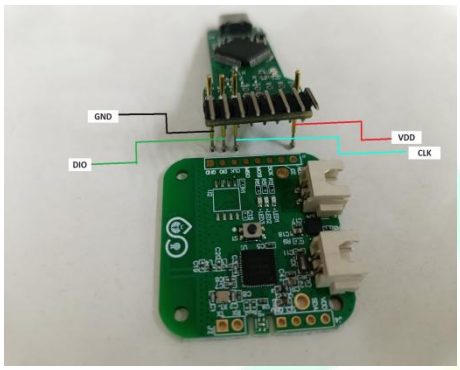
- To configure the i2c protocol, you have to enable it in the **overlay file**.
- Click on the **Config files [1]** > click on **Kconfig** > click on **Devicetree [2]** > click on **nrf52dk_nrf52832.overlay [3]**.
- The .overlay file will appear on your screen and add the given code to the .overlay file as shown in the picture given below **[4]**.

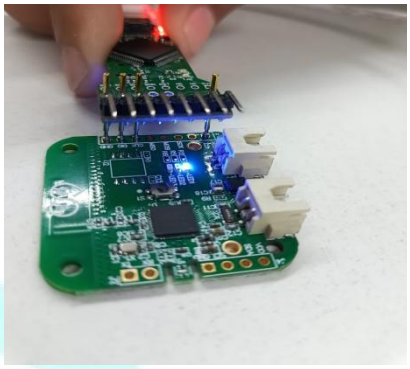


- Click on **Build [1]** configuration again and check the **CONNECTED DEVICES [2]**.
- If device id is visible, then **Flash [3]** the code in Dev Kit.
- If **flashed successfully [4]** message is displayed on serial terminal, then flash process is complete.



❖ Pin Configuration





Node with sht40 -> Flashing tool Pins

VDD -> 3V3

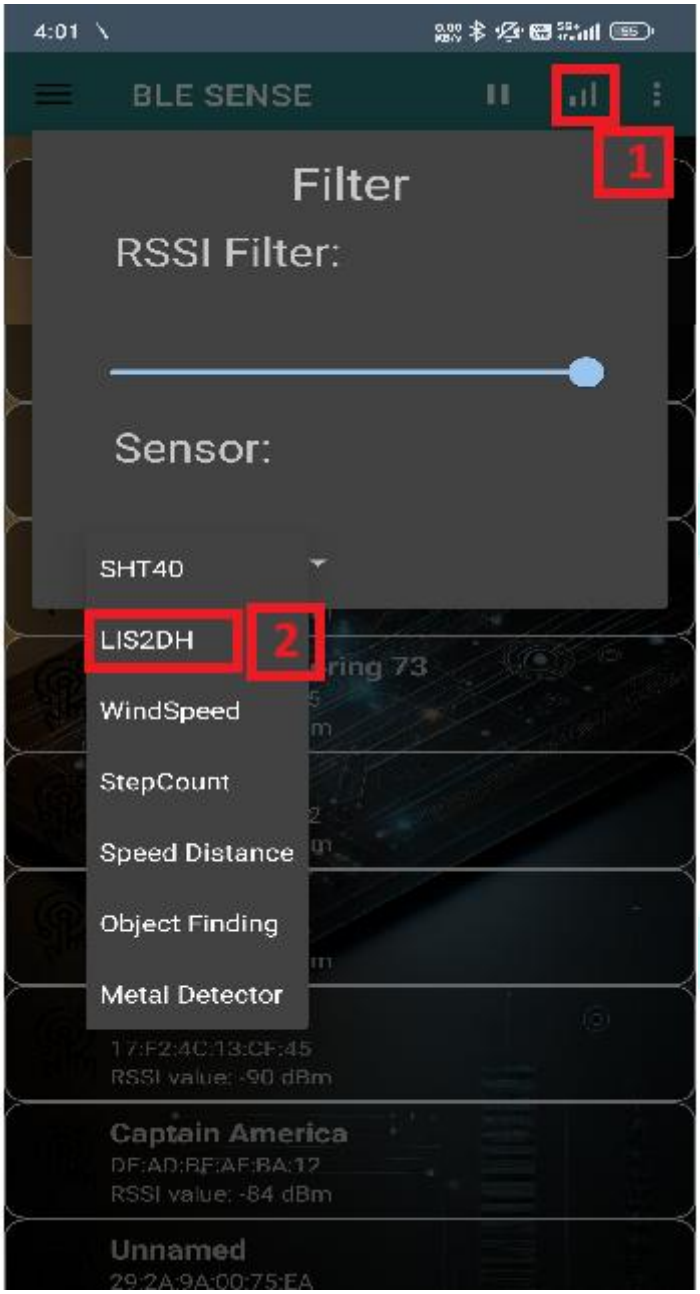
CLK -> SWC

DIO -> SWD

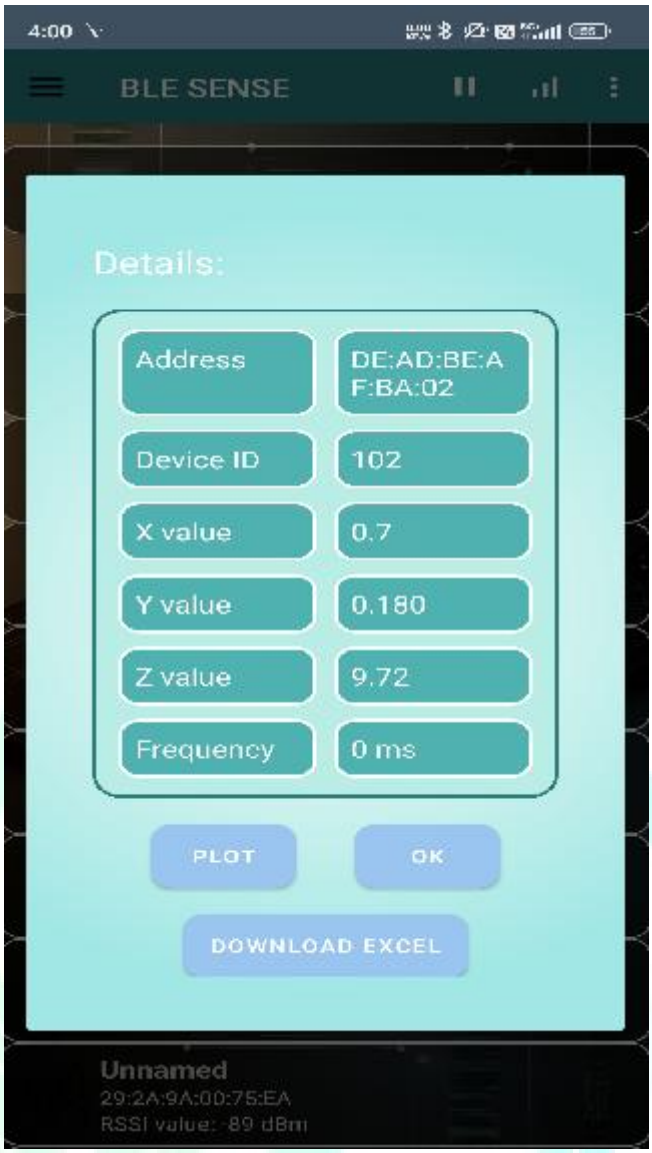
GND -> GND

❖ Attach battery to the node and open the BLE Sense Mobile App for checking the data.

❖ OUTPUT



- Click on the app.
- Click on [1] for selecting the type of sensor.
- Click on LIS3DH and then check the data as shown in figure 2.



- The value of the value of x-axis, y-axis and z-axis is received at the output as shown in above figure.