Step 1:

Step 2: Setting up the GWINSTEK AFG-3051

1. Turn the device ON using the power button.
2. Insert the USB Drive containing the PESMOS data.
3. Select the USB option in the AFG and rotate the knob to go to the selected data.
4. Tap Main Output.

Step 3: Construction of the Earthquake emulator (Shaker Table)

1. A 4 Ω, 6’’ woofer is taken.
2. A cylindrical dielectric (fiber-plastic) open on both ends of height 1.5’’ is taken.
3. The cylinder is placed over the diaphragm and fixed with strong glue such that there remains no air gap between the cylinder end surface and the diaphragm.
4. A thin (0.05mm) smooth surface (e.g. , SUNMICA) is placed over the other open end of the cylinder and fixed with the dielectric
5. Wires are soldered over the two terminals of the woofer through which the signal is to be applied.

Step 4: Assembling the circuit for Earthquake Emulation.

1. The 5 volt output of the Arduino board is connected to the Vcc pin of the MPU 6050 module.
2. The ground of the Arduino board is connected to the ground of the MPU 6050 module.
3. The SCL (Serial clock) of the MPU 6050 module is connected to the SCL pin of the Arduino board.
4. The SDA (Serial data) of the MPU 6050 module is connected to the SDA pin of the Arduino board.

Step 5: Source code for seismic wave detection

1. The source code was developed in the Arduino IDE. The references to the libraries called in the code are provided in the link https://www.arduino.cc/en/Reference/Wire
2. For understanding the code, basic knowledge of I2C communication protocol is necessary.
3. The datasheet and register map of MPU 6050 module is provided below :-



\*\*\*\*You can avail the code at \*\*\*\*

Step 6: The MACRO used for calculations and graphing (in MS-EXCEL)

1. 

^^ For reference on the MACRO please read - 

1. Using this Macro and the modifications in the code made for implementing the macro, we can plot the Graph by using Line Graph option from the toolbar.

