SVKM's NMIMS
Mukesh Patel School of Technology Management & Engineering
Computer Engineering Department
Program: BTech EXTC

Course: B. Tech (EXTC) **Faculty: Dr Avinash Tandle**

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Program : B.Tech	Division: C
Batch:	Date of Experiment:16/12/2021
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Aim: EEG Recording using software Neuromax 3.0.0.4

i. Installation of Neuromax
ii. Hands on S/W
iii. Capturing and importing EEG data

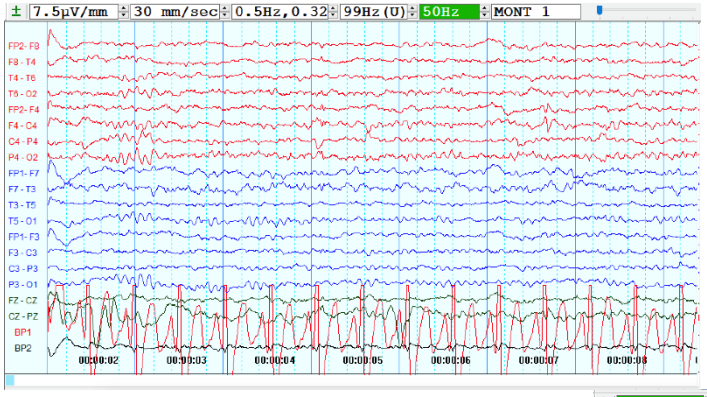
Installation instructions:

i. Download the Set-up and database folder from team's class material folder
ii. Run the NeuroMax32 Video (3.0.0.4) set-up as administrator after disabling antivirus
iii. After installation copy all the files from database folder
iv. Go to programme file folder on C drive where the folder of Neuromax is saved and paste all copied files of data base folder to overwrite all files

Observations and Definitions:

1. Gain:

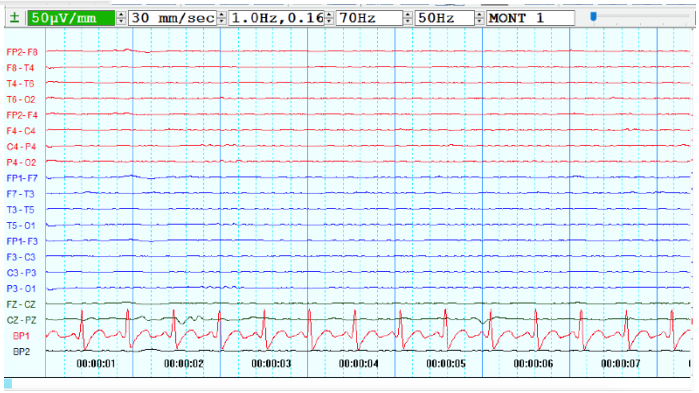
It is the sensitivity of the amplifier used to take readings, which is displayed in microvolts per millimetre.



Taking Gain as 7.5um

Low frequency as 0.5Hz, 0.32

Notch 50Hz



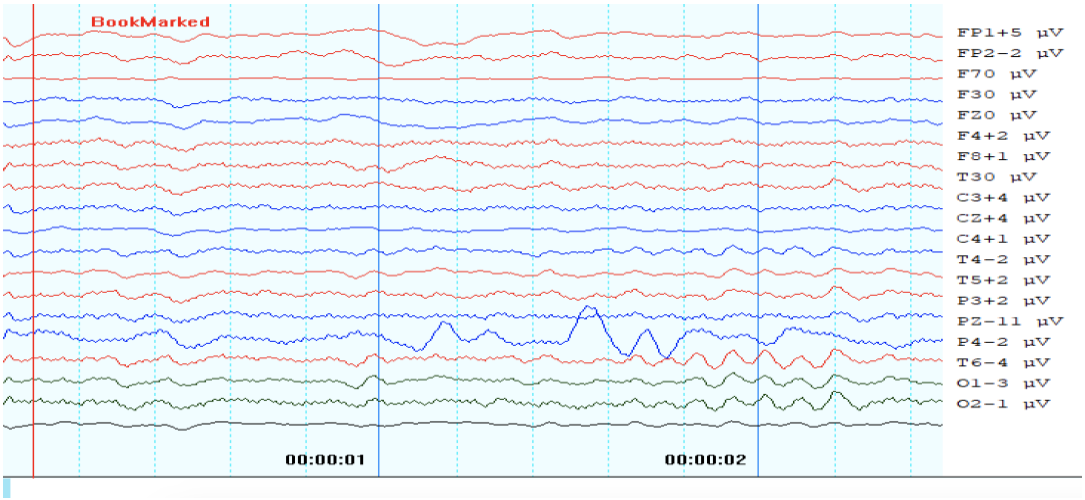
Taking Gain as 50um

Low frequency as 1.0Hz, 0.56

Notch 50Hz

2. **Paper speed:**

It is the amount of time displayed, which is sometimes referred to as an epoch.



3. **High pass filter / Low frequency filter:**

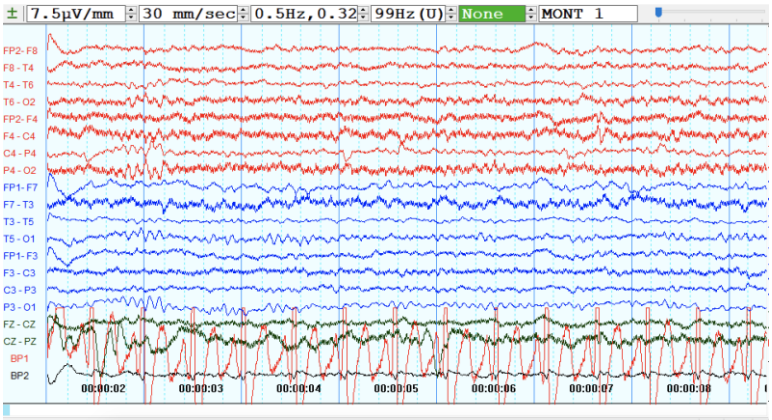
It filters out frequencies below a certain threshold and allows higher frequencies to pass through.

4. **Low pass filter / High frequency filter:**

It filters out frequencies above a certain threshold and lets lower frequencies pass through.

5. **Notch filter:**

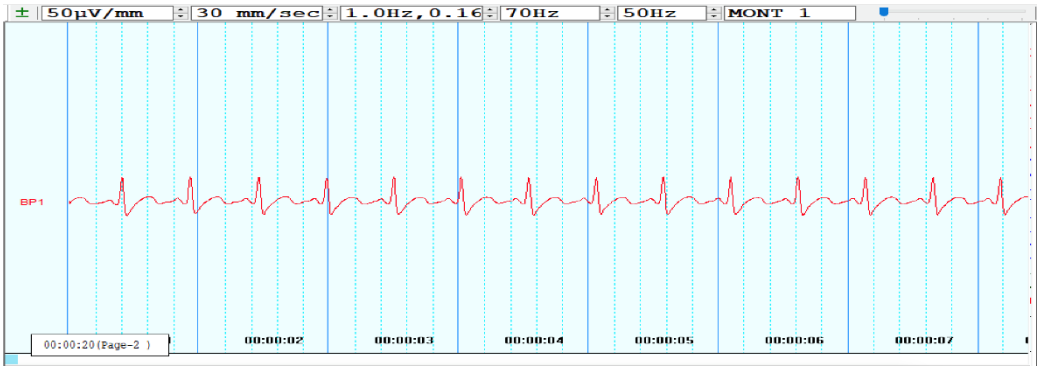
It selectively removes 50/60 Hz activity that arises from electrical interference such as wires and equipment. The left image below has notch filter applied which removes the noise that can be seen in the right image below.



Screen short of the graphs

6. **Montages:**

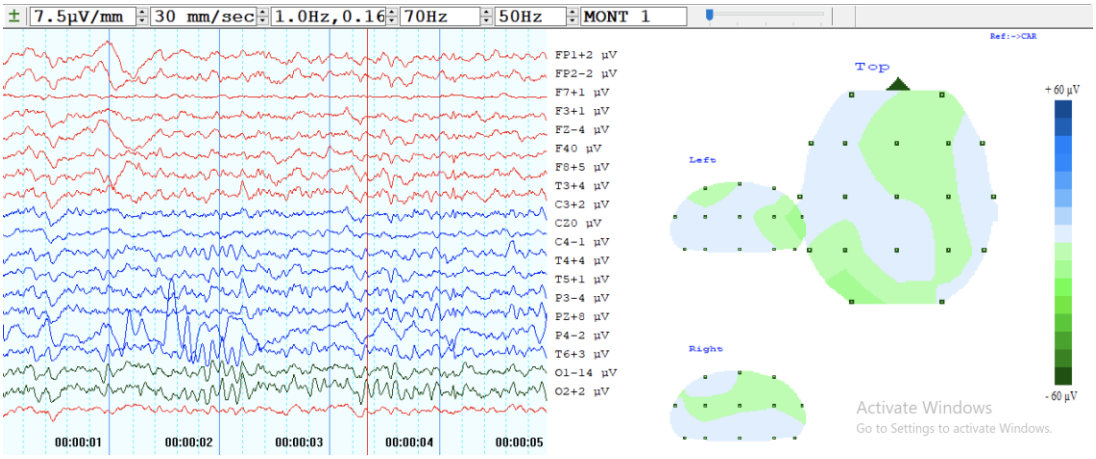
EEG readings are taken by connecting electrodes in formations known as montages.



- The graph shown above is of an ECG (electrocardiogram) which is shown as montage BP1.
- It is periodic in nature, has high amplitude and has peaks known as QRS curve.
- All other montages are stochastic in nature and have much lower amplitudes.

Voltage maps:

Various regions are coloured according to corresponding voltage differences as a result of brain activity which ranges from + 60 µV to – 60 µV.



Conclusion: In this experiment, we installed and set up the Neuromax software, understood varying the parameters as mentioned above.