Course: **B.Tech.(ECE)** Course Code: **ECE-3001** Class Nbrs: **VL2019205005274/ 5219** Course Type: **ELA**
Course Title: **ANALOG COMMUNICATION SYSTEMS** Slots: **L53+L54/ L57+L58** Faculty: **Sanjay Kumar Singh**

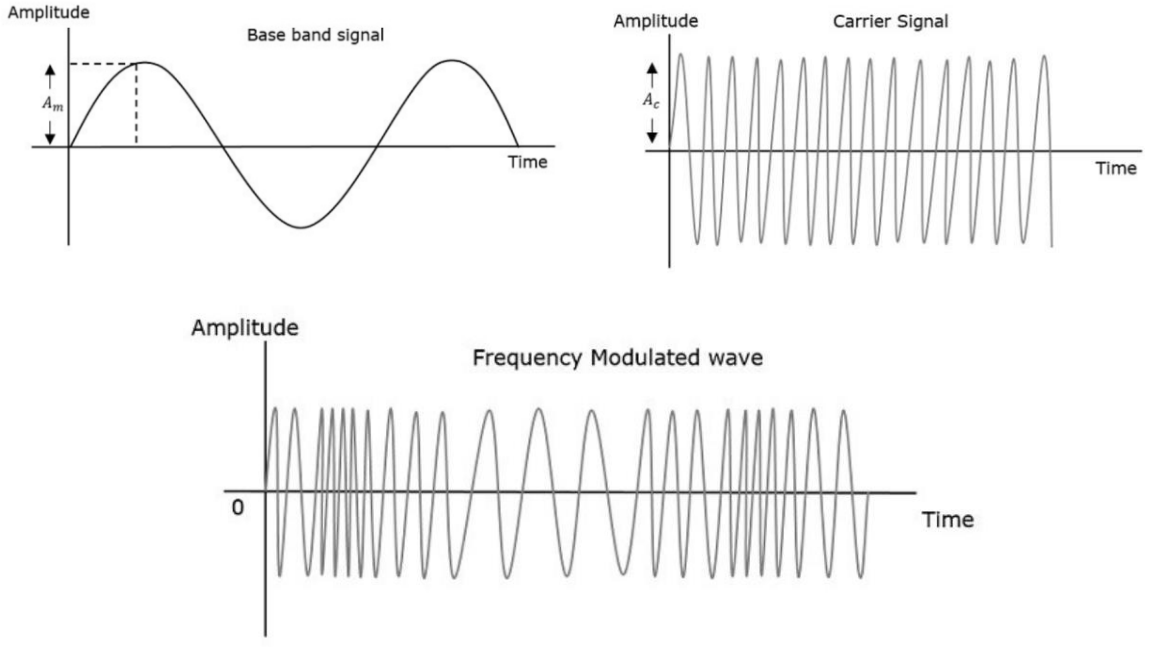
Name : **Siddhartha Bose** Reg. No. : **18BEC0535**

Objective :-

Design a real-time FM system to transmit and receive your own voice.

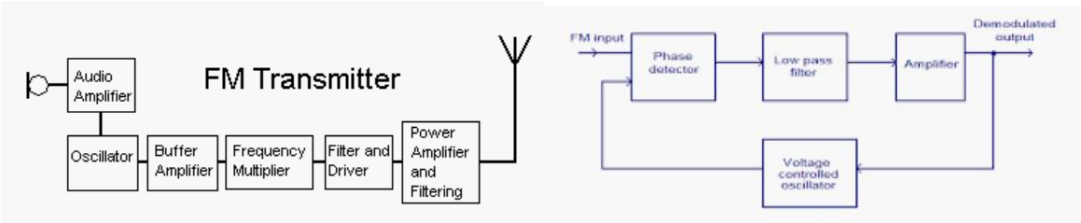
Theory :-

Frequency Modulation is the process of varying the frequency of the carrier signal linearly with the message signal. In amplitude modulation, the amplitude of the carrier signal varies. Whereas, in Frequency Modulation (FM), the frequency of the carrier signal varies in accordance with the instantaneous amplitude of the modulating signal. Hence, in frequency modulation, the amplitude and the phase of the carrier signal remains constant.

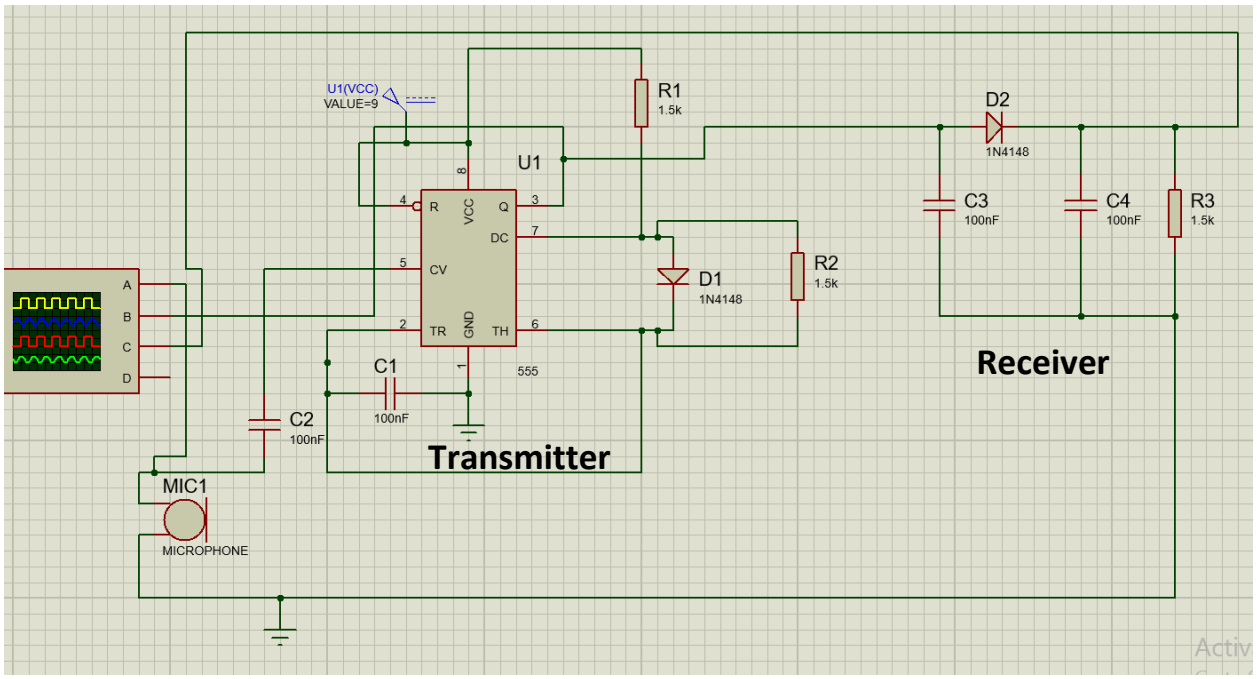


When the audio signal is modulated onto the radio frequency carrier, the new radio frequency signal moves up and down in frequency. The amount by which the signal moves up and down is important. It is known as the deviation and is normally quoted as the number of kilohertz deviation. As an example the signal may have a deviation of plus and minus 3 kHz, i.e. ±3 kHz. In this case the carrier is made to move up and down by 3 kHz.

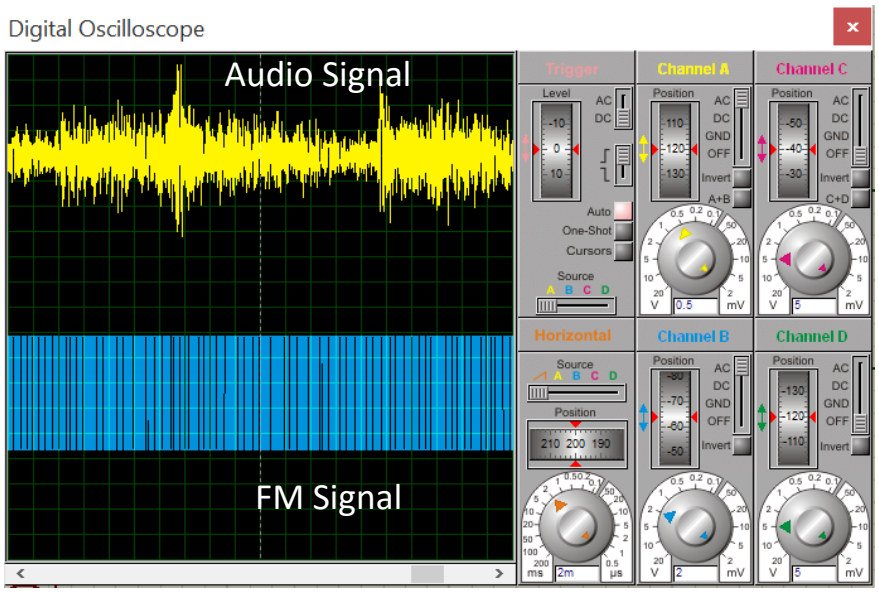
As with any form of modulation, it is necessary to be able to successfully demodulate it and recover the original signal. The FM demodulator may be called a variety of names including FM demodulator, FM detector or an FM discriminator.



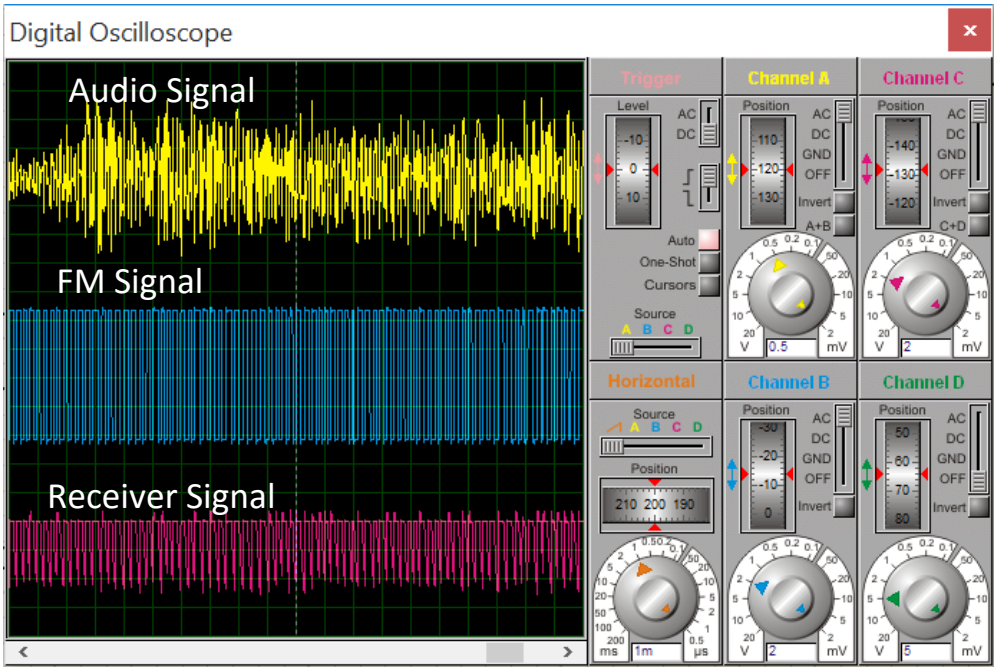
Circuit Diagram :-



Observations :-



FM MODULATION of Voice Signal



FM MODULATION & DEMODULATION of Voice Signal

Result :-

We were successful in achieving the Frequency modulation of our voice signal using the **Proteus software**. Below we have attached the link to the stimulation and the video recording of the working of the software.

Attachments :-

- **Task GIT HUB folder :**
  https://github.com/SIDDHARTHA2301/ACS/tree/master/TASK%202
- **Task Stimulation :**
  https://github.com/SIDDHARTHA2301/ACS/blob/master/TASK%202/FM.pdsprj?raw=true
- **Task Recording :**
  https://github.com/SIDDHARTHA2301/ACS/blob/master/TASK%202/FM%20REC.mp4?raw=true