

# BANGLADESH UNIVERSITY OF ENGINEERING AND TECHNOLOGY



DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

## PROJECT PROPOSAL

**Course No:** EEE 208(Software)

**Course Title:** Electrical Circuits II Laboratory

**Name:** MD. SHIPON HOSSAIN

**Student ID:** 1906155

**Partner's Name:** Shourov Joarder

**Partner's Id:** 1906156

**Section:** C1

**L/T** 2-2

**Department:** EEE

**Date of Submission:** 15-07-2022

## Signal Generator Using 555 timer and OP-AMP

**Project Description:** The goal of this project is to generate mainly three types of signals primarily used in electric circuits. Our model will be able to generate **sinusoidal**, **square** and **triangular** signals. So, there will be mainly 3 parts in our circuit. Mainly, the **555 timer** will be used to generate a square wave, a **Wien Bridge oscillator** will be used to generate the sinusoidal signal and the triangular wave will be generated from the square wave through an **integrator** circuit. The user will have control over the frequency of the generated signals. By changing some parameter's values the user can get the expected signal of desired frequency.

### Block Diagram:

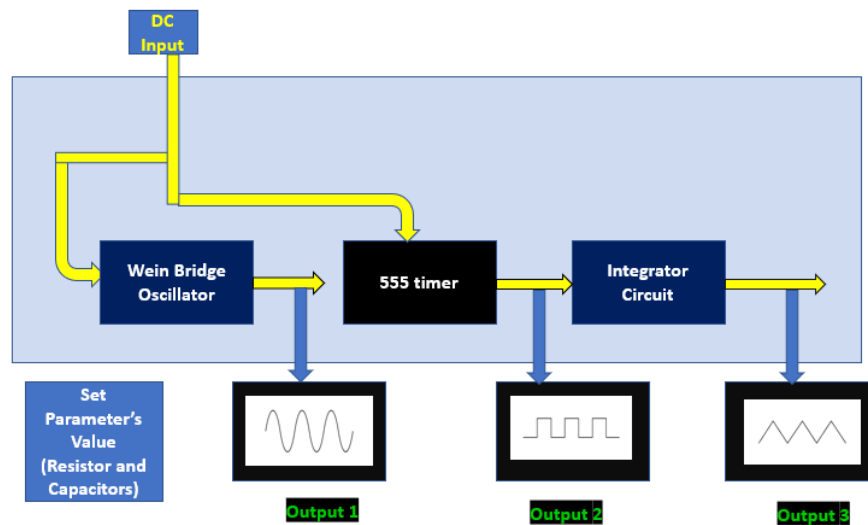


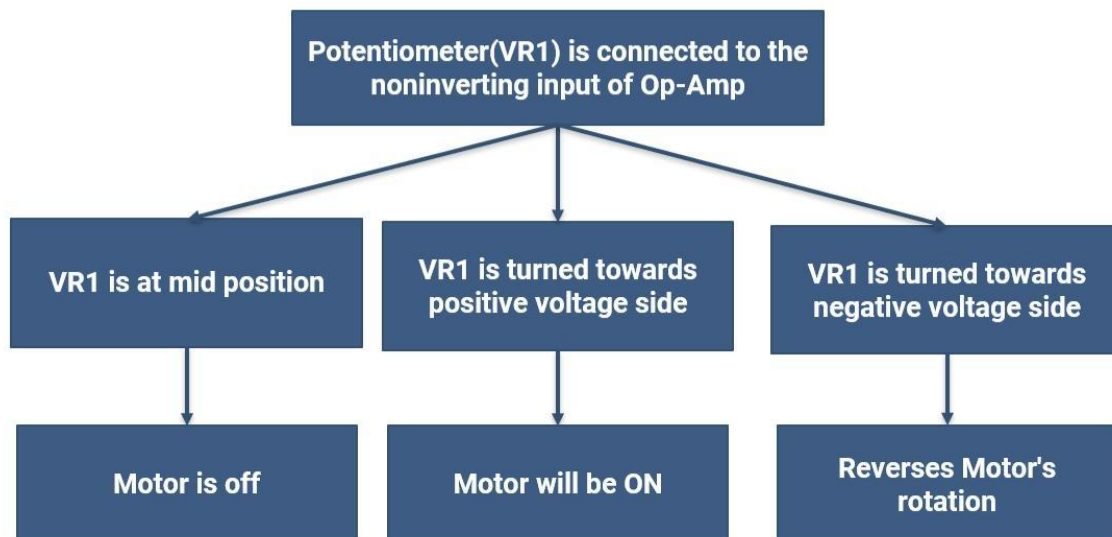
Fig: Block diagram of the Project

**Plan:** The whole circuit will be simulated via ORCAD PSPICE. Due to the unavailability of user interface options the parameters of the model will be changed manually to produce desired output wave of desired frequency.

## **DC MOTOR CONTROLLER CIRCUIT USING 741 OP-AMP**

**Project Description:** We want to control the speed of a DC motor using a 741 operational amplifier. Here, Op-amp is operating as a voltage follower and a potentiometer is connected to the non-inverting input of Op-amp. Two transistors (nnp & pnp) will be used in the output terminal.

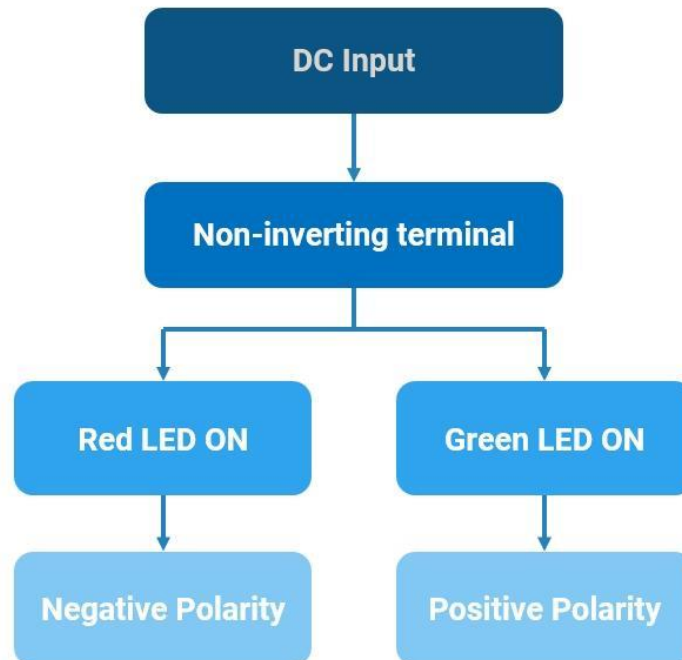
By changing the position of potentiometer, we can control the speed and rotation of the DC motor.



**Plan:** The circuit will be simulated via Proteus/Tinker cad. Due to the unavailability of DCMOTOR part in PSPICE, we can't simulate this circuit in PSPICE.

## DC Volt Polarity Indicator using 741 Op-Amp

**Project Description:** Our goal is to determine the positive and negative polarity of DC volt. We will use a 741 Op-Amp in non-inverting mode. DC polarity to be tested is connected to Vin(pin 3) via resistor. **If negative volt is connected to Vin, DC negative volt has appeared at output pin(pin6) and if positive voltage DC volt is given to Vin pin, DC positive volt has appeared at output pin(pin6).** The output is connected to LEDs(Green and Red). Glowing Green LED indicates positive DC volt and glowing Red LED indicates negative DC volt.



**Plan:** The whole circuit will be simulated via ORCAD PSPICE.