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BRANCH: BTECH - CSE AND SPEC IN AI/ML – VITCHENNAI

BECE101P_SLOT-L5+L6_EXPERIMENT – 11

FACULTY: PROF. SASITHRADEVI MA'AM

RC Phase Shift Oscillator

AIM: To study, understand and simulate the RC Phase shift oscillator using LT-spice.

SOFTWARE REQUIRED: LT-Spice

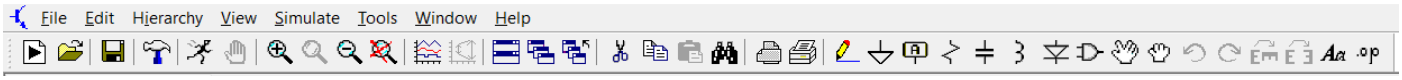
Apparatus required: In LT-Spice we use wires, grounding cables, resistors, capacitors, Npn – transistor and voltage source.

Theory:

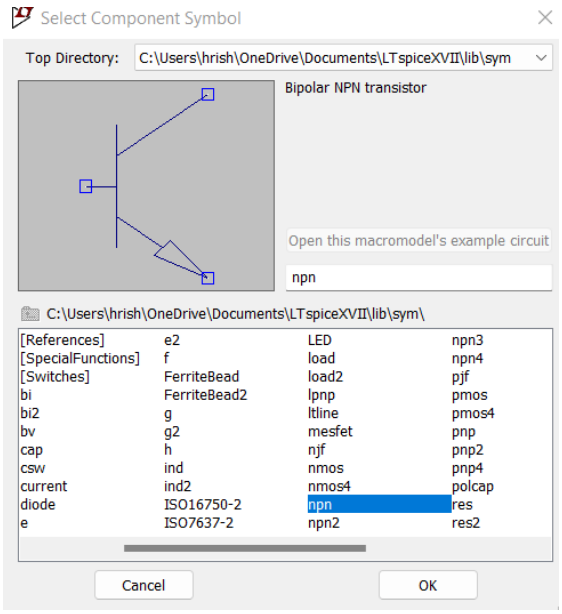
RC phase-shift oscillators use resistor-capacitor (RC) network (Figure 1) to provide the phase-shift required by the feedback signal. They have excellent frequency stability and can yield a pure sine wave for a wide range of loads.

PROCEDURE:

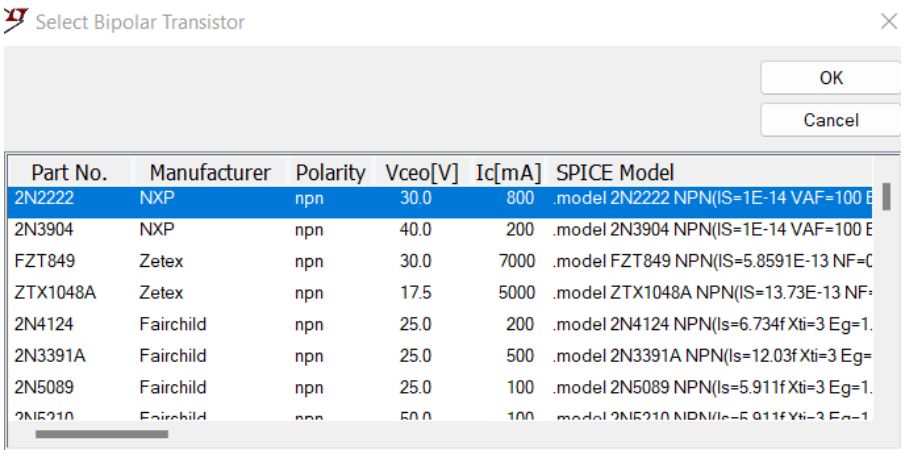
1. Click on the components (component library) button on the toolbar, and then using the components draw the circuit exactly as shown in circuit diagram (later shown) using npn-transistor, resistors, capacitors, grounding, wires and voltage sources.



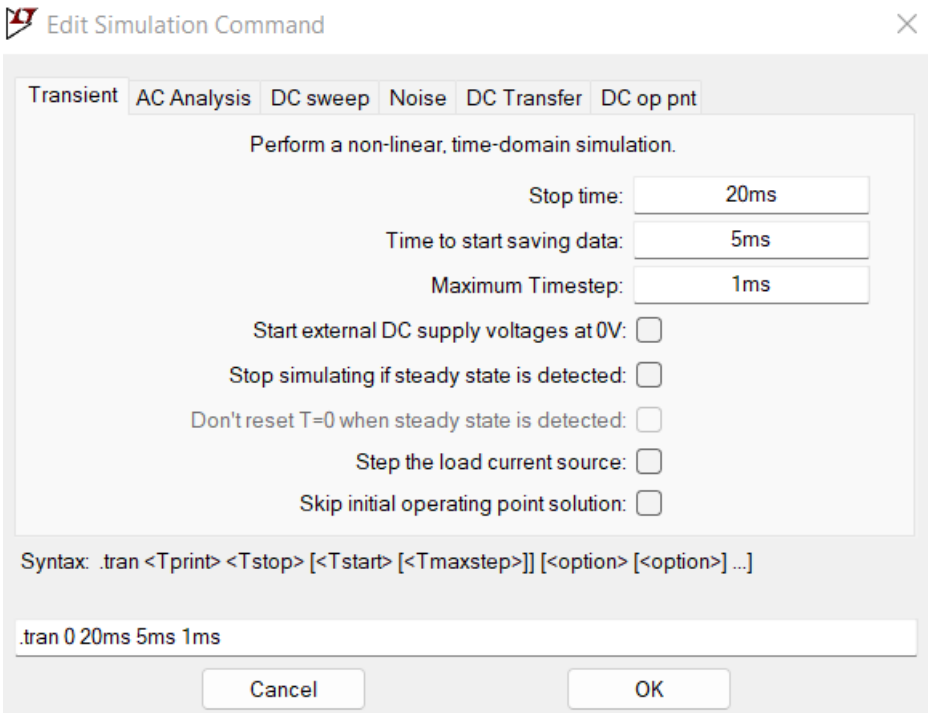
2. In the component library choose the npn transistor and connect it in the circuit as shown in the circuit diagram.



3. Now right click the transistor and click pick new diode. choose the npn transistor – 2N2222 as shown in the circuit diagram.



4. Give the value for resistors, capacitors and voltage source as shown in the circuit diagram. Also make the connection properly. Do not forget to add grounding.
5. Now, under simulation → click on edit simulation command and then under transient give the parameters as shown below.



6. Next, under simulation, click on Run (or click on run symbol).
7. Now, when graph appears, left click on the right-hand side terminal of the C4(Vnc_01) capacitor and this would give us the RC Phase shift Oscillator OUTPUT.

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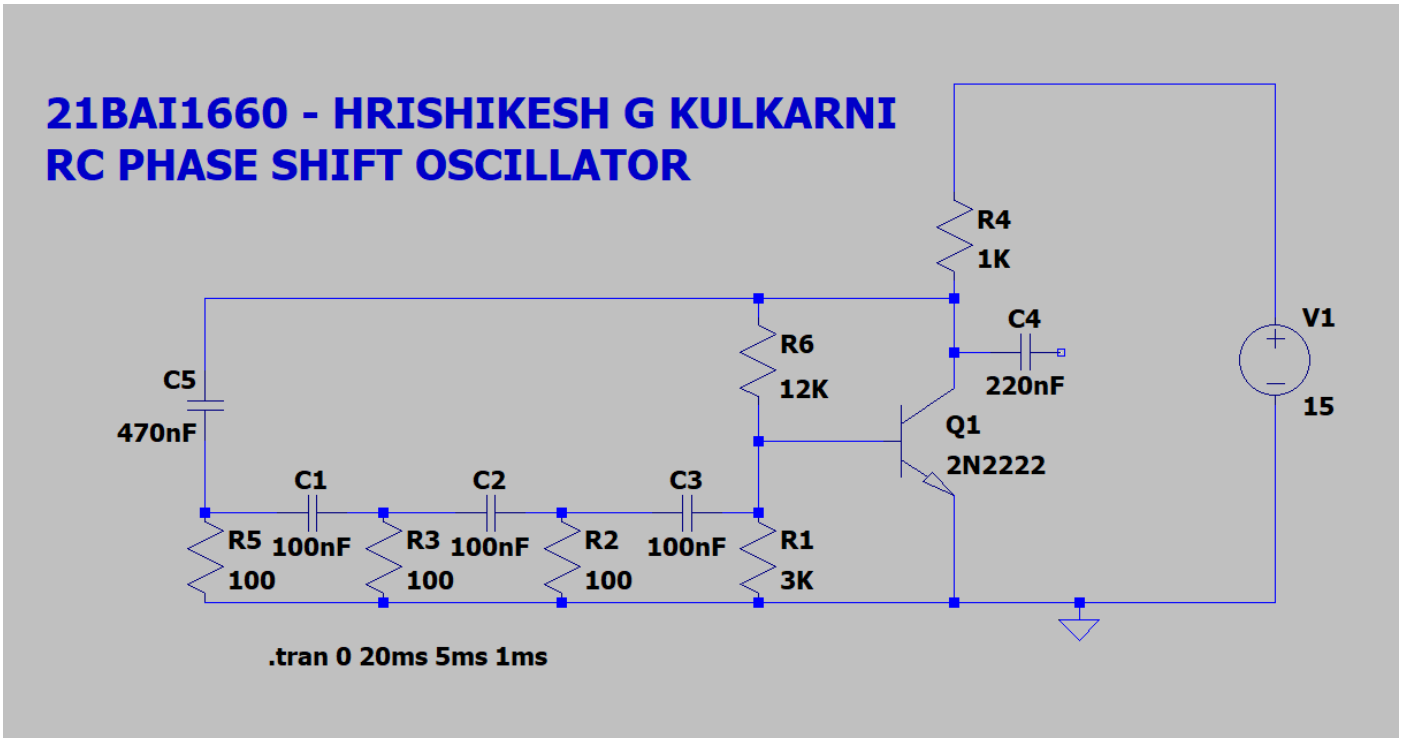
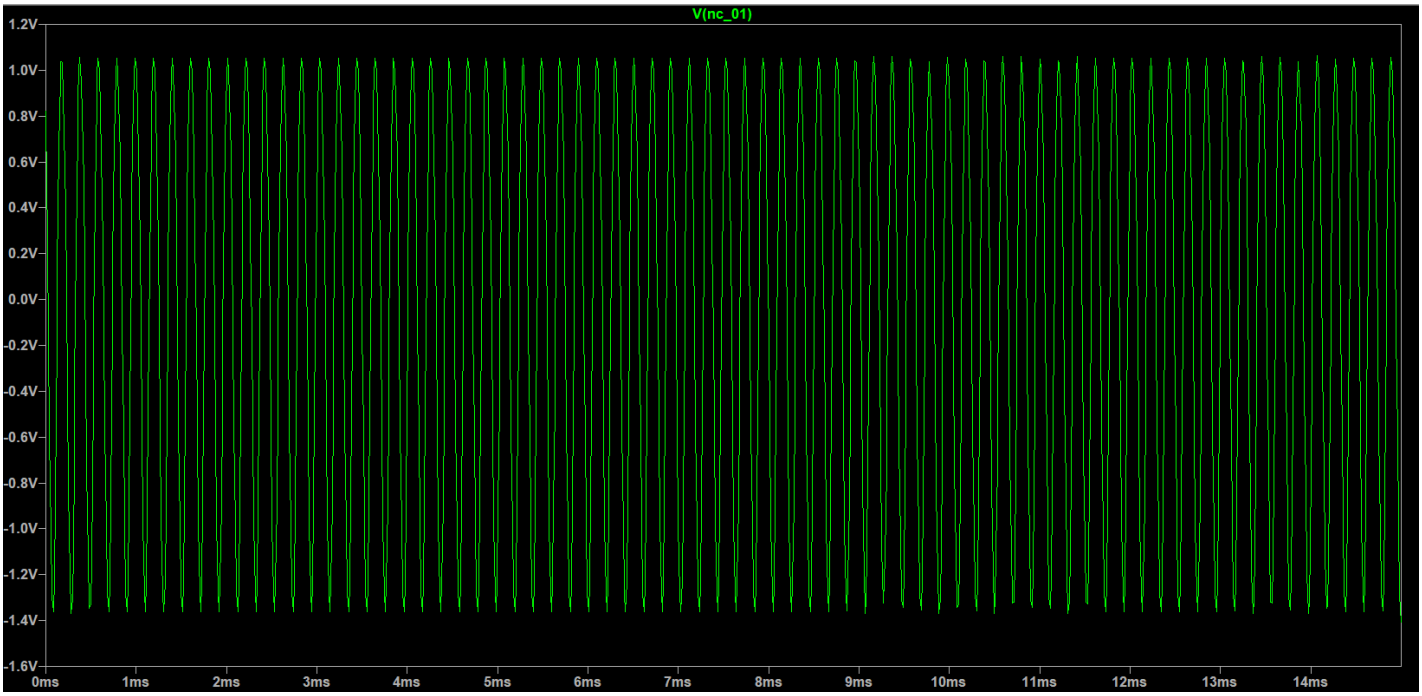
CIRCUIT DIAGRAM



OUTPUT



Result and Inference

From the LT-spice simulation, we were able to study, understand, observed and verify the RC Phase shift oscillator output.

=====THE-END=====