Experiment No: 02

Name of the Experiment: Design, Implementation, and performance Testing of an ~~ASK~~ ASK Digital Modulation circuit using IC-CD4016

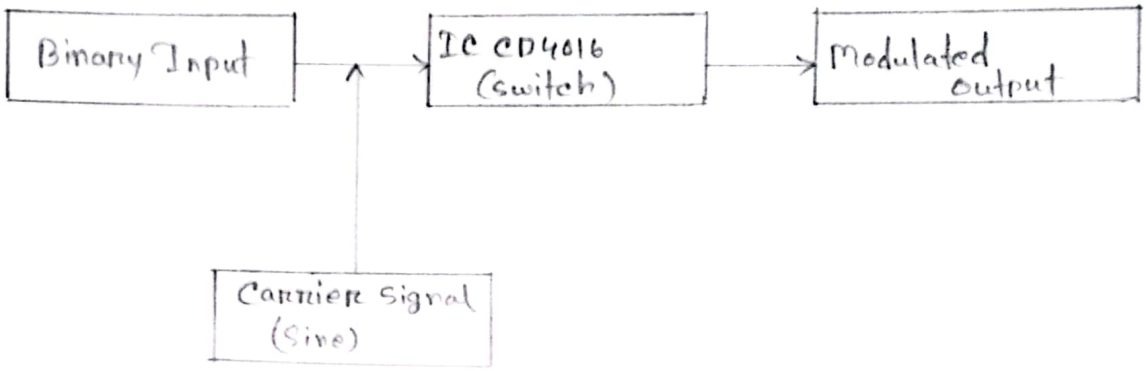
Objectives:

→ To design and implement an Amplitude Shift keying (ASK) modulation circuit using the CD4016 IC.
→ To analyze the working principle of ASK modulation and its significance in digital communication.
→ To identify potential improvement for better performance.

Theory: ASK is a digital modulation technique in which the amplitude of the carrier signal varies based on the digital input signal.
→ When the binary signal is '1' the carrier signal is transmitted.
→ When the binary signal is '0', the carrier signal is suppressed.

2.2

Block diagram:

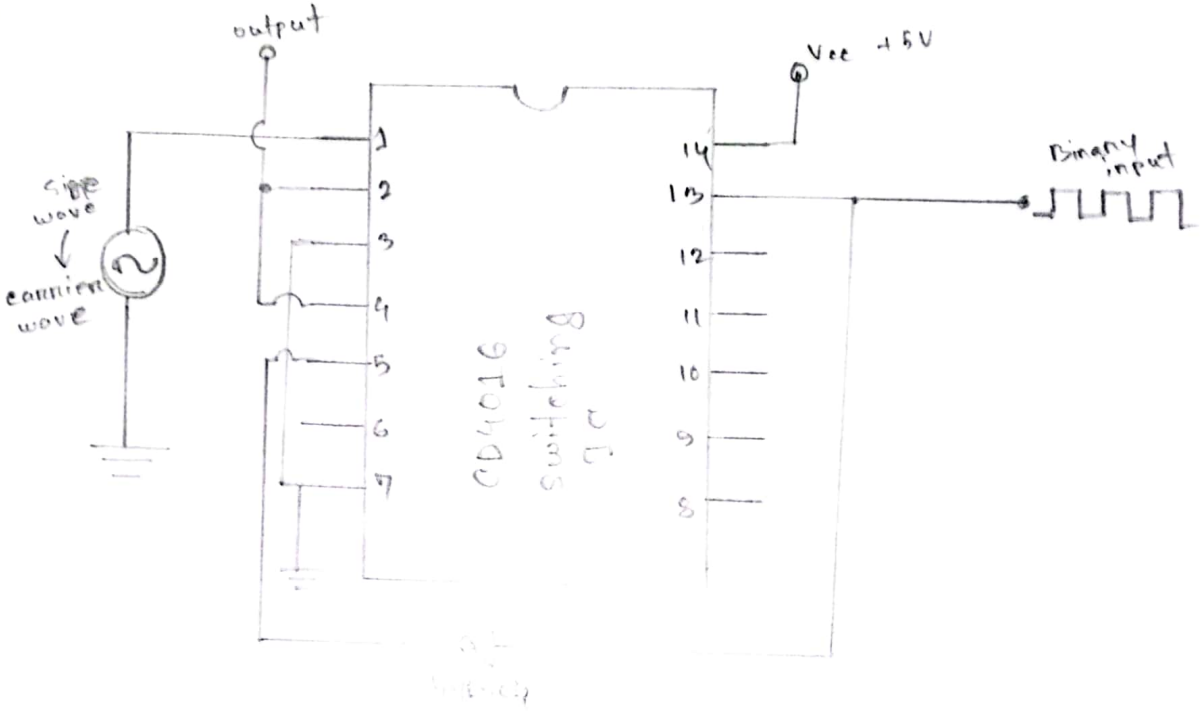


Apparatus Required:

(1) IC CD4016
(2) Oscilloscope
(3) Function Generator
(4) Power Supply
(5) Bread Board
(6) IC ~~7404~~ 74LS04
(7) Connecting wires.

2.3

Working Diagram:



Procedures:

(1) Connect the IC CD4016 on a breadboard.

(2) Connect a function generator to provide a high-frequency sine wave as the carrier signal.

(3) Provide a binary input using a function generator.

(4) Connect the output to an oscilloscope for observation

(5) Power on the circuit.

(6) Apply digital input and observe the ASK-modulated waveform.

Precautions:

→ Ensure proper powersupply connections to prevent damage to IC cp4016.

→ Avoid loose wiring to ensure signal transmission.

→ Use an oscilloscope probe properly to avoid signal distortion.

Result: The oscilloscope display the ASK waveform, showing amplitude variations based on the input data.

Discussion:

we implement the circuit of ASK and by testing the performance we understand the operation of ASK digital modulation circuit.