

JYOTHISHMATHI INSTITUTE OF TECHNOLOGY & SCIENCE

PPT ON PULSE POSITION MODULATION

PRESENTED BY

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Pulse Modulation Technique

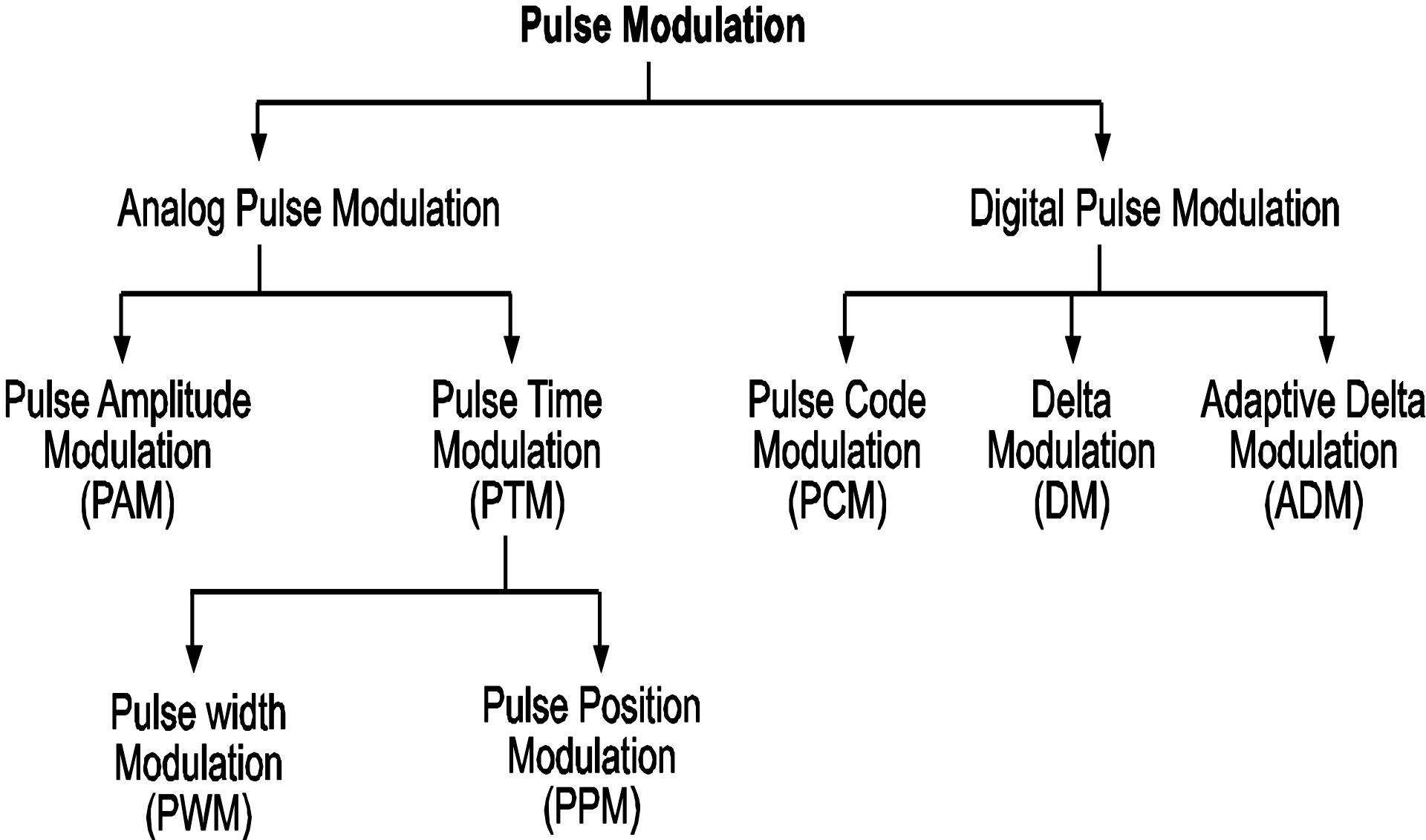
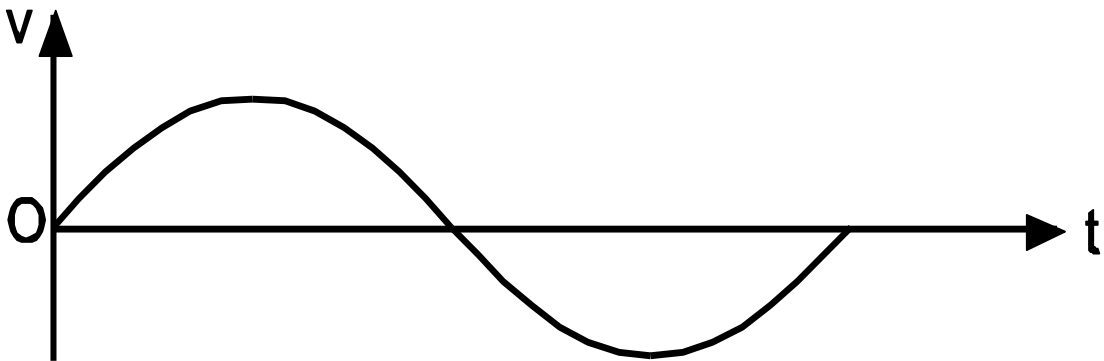
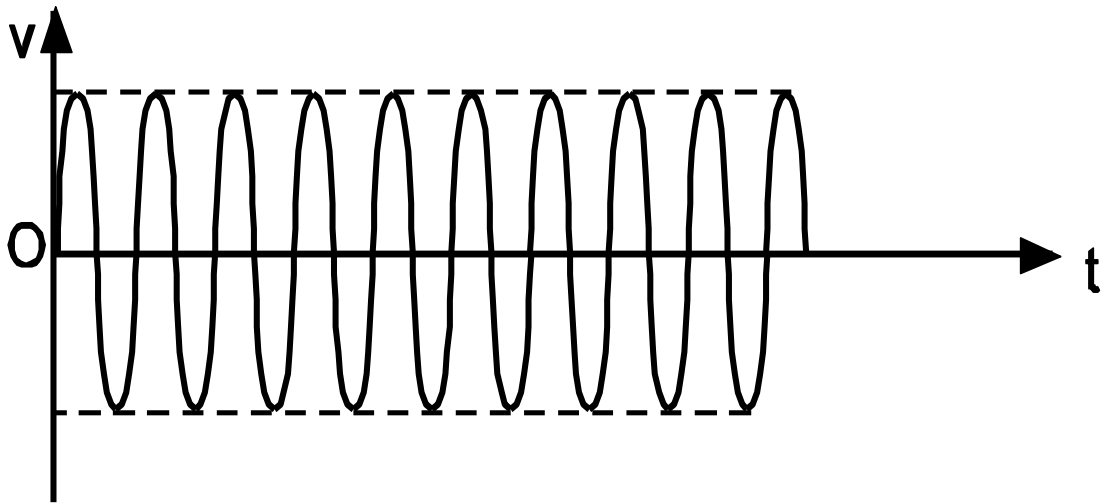


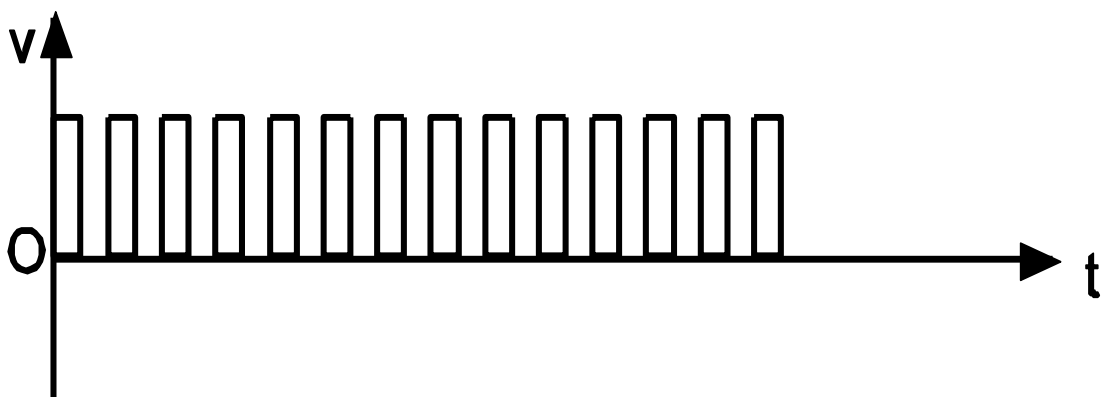
Fig. : Carrier for Continuous Wave and Pulse Modulation



Modulating signal
(same for both techniques)



Carrier for continuous wave
Modulation (AM, FM, PM)



Carrier for
Pulse Modulation

Need of Pulse Modulation

- Comparing to continuous wave modulation (like AM, FM), the performance of all pulse modulation schemes except PAM in presence of noise is very good.
- Due to better noise performance, it requires less power to cover large area of communication.
- Due to better noise performance and requirement of less signal power, the pulse modulation is most preferred for the communication between space ships and earth.

Pulse Position Modulation (PPM)

Definition

- **When position of pulse carrier varies in accordance with the instantaneous value of modulating signal is called PPM, where width and amplitude of carrier remains constant.**

Generation of PPM

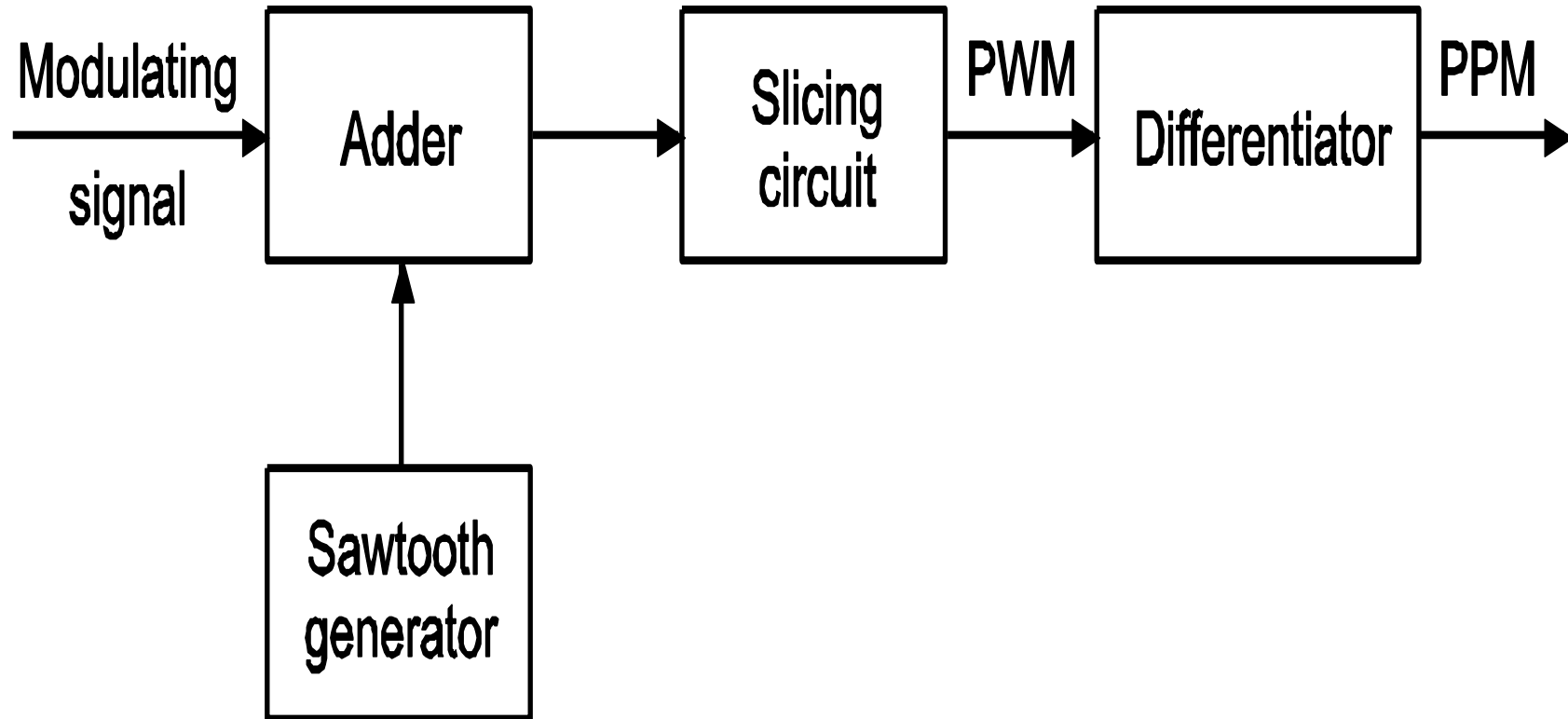
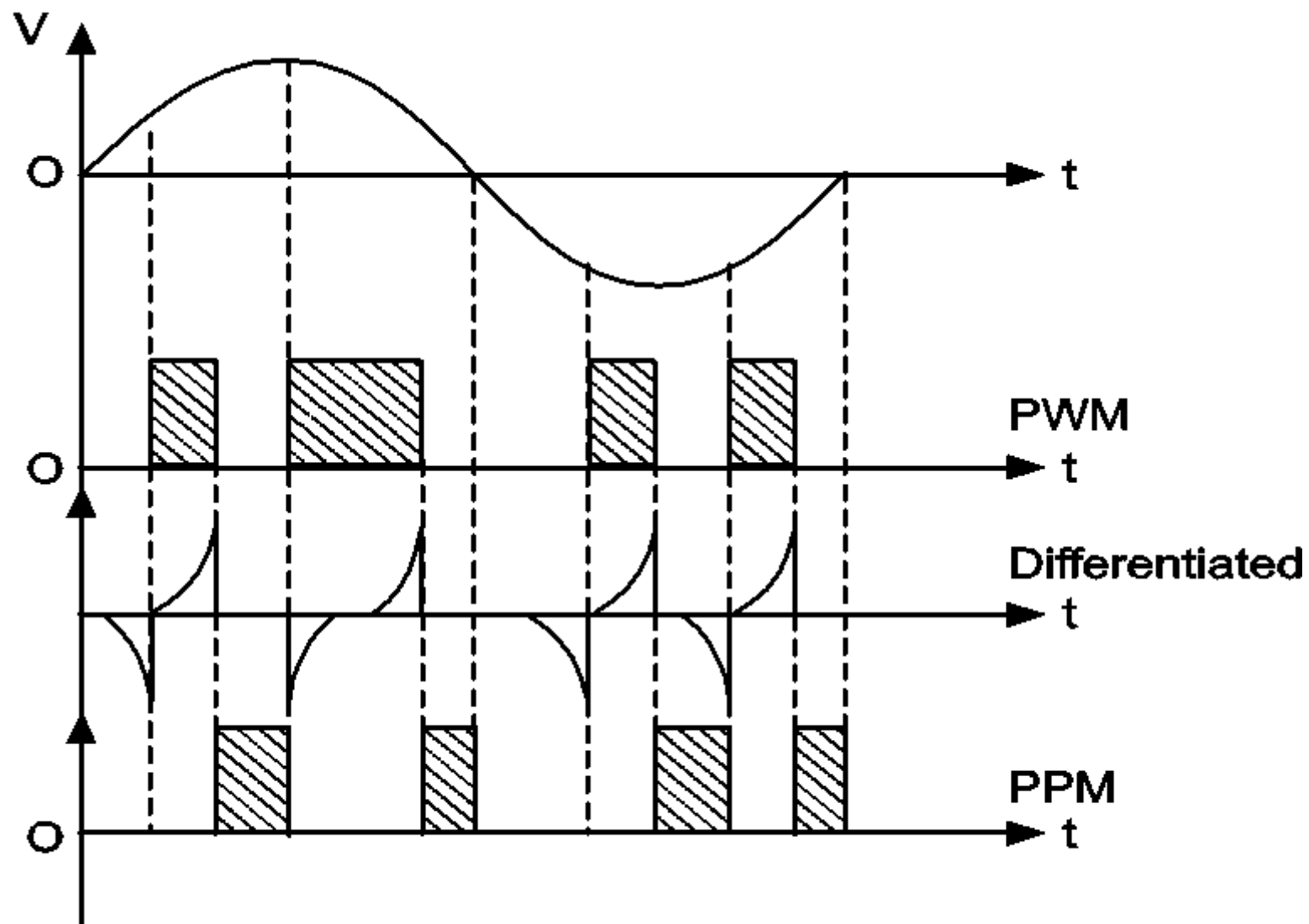


Fig.:Block diagram of PPM generation

Waveforms of PPM



Advantages of PPM

1. Good noise immunity.
2. Requires constant transmitter power output.

Disadvantages of PPM

1. Requires synchronization between transmitter and receiver.
2. Large Bandwidth requirement.

Applications of PPM

1. It is used for optical communication system where there is no multipath interference.
2. PPM is useful for narrowband FM channel allocation, with these channel characteristics in the **radio control** and model aircraft, boats and cars.
3. PPM is also used for military applications.

Generation of PPM using IC 555

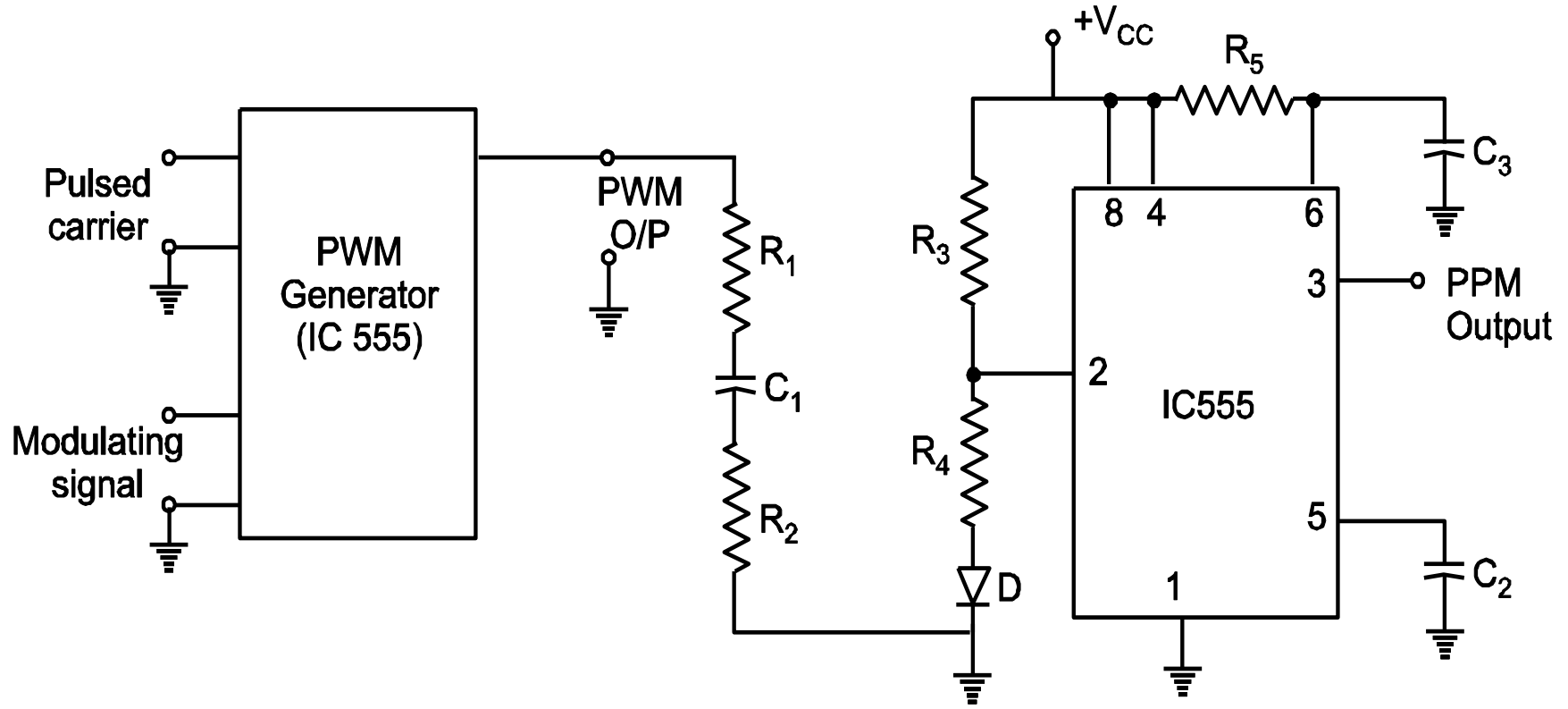


Fig. : Generation of PPM using IC 555