

Target:

Get to know:

- NPN Transistors
- PNP Transistors
- Relays
- DC Motor
- H-Bridge

Resources:

- [What is an H-Bridge?](#)
- [How a Bipolar Junction Transistor works | Intermediate Electronics](#)
- [Different Operating Regions of Bipolar Junction Transistors \(BJTs\)](#)
- [Relay](#)
- [Walid Isaa – Electronics Playlist](#) [Arabic - Recommended]

Problems:

- 1- Design a switch circuit with a transistor
- 2- Design a switch circuit with a relay
- 3- Design an amplifier circuit, can you do it with a relay?
- 4- Design an h-bridge circuit using four transistors with 2 NPNs & 2 PNPs to control a motor in both directions

Submission:

Send a compressed file named “Task 3 – Your full name” with the following data:

- Your proteus simulation file for each circuit, can you do them all in one?
- A picture (screenshot of the circuit) or a pdf of the schematic of the circuit
- A three-minute or less video of you explaining all circuits and the use of each component

Note: Make sure the size of compressed file does not exceed 25Mb.

Evaluation:

Each circuit → 2 points (total of 8)

Explanation video → 2 points

Deadline:

4 Days //Wednesday – Dec 6th, 2023 at 23:00