BJTs(Bipolar Junction Transistors

Here you can easily understand about BJT and it's uses

Introduction : BJTs(Bipolar Junction Transistors) may sound like a hard topic, but here we will break it down for you in simpler words, so you can understand it better.
Here we will go through how they work, their characteristics, symbols, types, and everyday applications.

Concept : You can see BJTs as three layers of semiconductor which consists of the emitter, base and collector. They are like burgers where we use either N or P-Type layers. There are two types of BJTs - NPN which stands for Negative-Positive-Negative and PNP which stands for positive-negative-positive.

Working : BJTs are like the ones who controls the traffic of electrons. In NPN transistor electrons move from the emitter to the base which creates a small current and this little current controls a much larger flow of electrons which goes from collector to emitter which makes all the things happen in electronic circuits.

Characteristic Curve : This curve is like a graph that shows how BJTs behave and this helps us to understand better about how transistors responds to different inputs and outputs.

Symbol : When you draw circuits, you'll use symbols in place of BJTs so you can represent them. For NPN, think of an arrow which is pointing outwards; for PNP, think of an arrow which is pointing inwards. In this symbol the arrow shows the direction of conventional current flow.

Types : NPN (Negative-Positive-Negative) and **PNP (positive-negative-positive)** these are the two main types of BJTs.
In NPN it too has three layers and just like a burger the top most layer is Negative then the middle part is positive and the last layer is Negative again.

Working : In NPN the electrons flow from the emitter to base and this creates a small electron current which controls a much bigger flow of electrons from the collector to the first layer which makes things happen in our electronic gadgets.

Symbol: we can represent it by an arrow pointing out of the transistor symbol which indicates the direction of the current flow.

PNP (positive-negative-positive) in this it’s still the same kind of burger like it was in NPN but this time it’s like the first layer is positive then the middle part is negative and then again the last layer is positive again.
in PNP positive charge carriers move from the emitter which is a positive layer to base which is a negative layer which also creates a small hole current

and this small current controls a much larger flow of holes from the collector to the first layer which makes the transistor do this thing.
we can draw it’s simple by drawing a arrow pointing into the transistor symbol which shows the direction of conventional current flow which is same as NPN but it’s reversed.

Applications : **BJT**s are used in many of our day to day life electronic devices like we use it for amplification to make signals stronger in audio.
Then it‘s also used as a switch to control electronic devices like a light switch, just like that it‘s also used un oscillators to create waveforms for many applications then it‘s also used in voltage regulations to keep power supplies stable.

Conclusion : BJT are not that complicated as they seem to be. but they really help to power our gadgets, amplifying our signals and making our day to day technology work really well.