Capacitor

Intro

→ *So, in this video, we are going to see Buzzer following the four-step process which I have already created a video on, so let's start.*

What is Capacitor

→ *The capacitor is actually a component that can store energy, it has two major functions.*

→ *The first function is that it can store energy and the second function is that it can avoid fluctuations.*

→ *It is also known as a condenser, cap, or filter.*

Similarities to a water-dispenser

→ *If I want to transfer water from a 20L can to a bottle, obviously the water will spill out and it will not flow at a uniform rate. But if are using a water dispenser and then when I open the tap then the water will come out at a uniform rate. This is a very similar working of a capacitor as well your electricity has always a huge number of variations in the flow of the current, so to avoid that fluctuation we use a capacitor.*

Types of Capacitors

→ *These are all the various types of capacitors; you will find in almost each and every type of electronic device you come across*

→ *There are two types of capacitors:*

- *Electrolytic (Polarized)*
- *Electrostatic (non-Polarized)*

Tasks of Capacitor

→ *The first task that is done by the Capacitor is to calculate the amount of energy stored in it and this energy is calculated in Farad.*

→ *The process of calculating the energy is known as Capacitance.*

Difference between Electrolytic and Electrostatic Capacitor

→ *Electrolytic:*

→ *In this, we have a positive and a negative filament*
→ *We have to connect the positive filament to the positive terminal of the battery as well as the negative*

→ *Electrostatic:*

→ *In this, we don't have any positive or negative filament.*

→ *You can connect any filament to any of the terminals (if you have connected a filament to the positive terminal then should connect the other one to the negative terminal)*

→ *How to find Capacitor's polarity*
→ *The first method is whichever filament is longer than it is the positive and the other is negative.*

→ *The second method is whichever color is less used to color code the capacitor the filament below it is negative.*

Real-Time Application of Capacitor

- *Fan*
- *AC (Air Conditioner)*
- *Computer Mother Board*

Circuit Symbol

→ *Polarized Capacitor:*

→ *It starts with a straight line than a curved line opposite of the first line then after leaving some space a straight line similar to*

the curved line and then a line similar to the first line. Then we will simply label the curve line as the negative and the parallel line to it as the positive.

→ *Non–Polarized Capacitor:*

→ *It is the same as the Symbol of a polarized capacitor but we will simply replace the curved line with a straight line and we will not label it.*

Online Circuit Simulation

→ *Now let's go to our tinker Cad. Then I will create a new circuit.*

→ *Now I will drag a capacitor, a Bread Board, a battery, and LED*

→ *Now click on the capacitor and then update the second and the third attribute of it which is the capacitance to 470 and the voltage rating to 24.*

→ *Now connect the battery to the power rails and then connect the capacitor to any of the strips of the Bread Board now drag the LED and connect its negative filament to the strip where the capacitor's negative filament is connected and the same for the positive filaments.*

→ *Now connect the positive power rail to the positive strip and the negative power rail to the negative strip. And then click on start simulation, and you will see your LED is glowing perfectly fine.*

Practical Experimentation

→ *Components required:*

- *A Bread Board*
- *A Capacitor*
- *LED*
- *Some Jumper Wires*
- *A Battery*

→ *Now connect the battery's terminals to the power rails of the breadboard then we will connect the capacitor to any of the strips and then connect the LED's positive filament to the strip where the capacitor's positive filament is connected and the same for the negative filaments. Now we will connect the positive power rail to the positive strip and the negative power rail to the negative strip. Filaments. Now we will connect the positive power rail to the positive strip and the negative power rail to the negative strip. and you will see your LED is glowing perfectly fine.*

Representation – Circuit Diagram of the capacitor

→ ***Now first we will draw the battery then we will draw the polarized capacitor and then we will draw the LED then we will connect all the lines in order and then label them as positive or negative.***

Outro

→ ***That's all for this video and I will see you in this next one until then BYE BYE!!***