Now we can see the switching mood. Here we consider two methods for our battery charger. Method one is using a relay as a switch. We use a 5V relay to change the battery connection between constant current and constant voltage source. At the beginning of the relay input, we use a 741 IC comparator circuit because it gives the correct required voltage for relay functionalities. After the relay connection, we connect constant current and constant voltage parts.

The input of the comparator voltage is the output of the battery voltage. This battery voltage will be compared with the threshold voltage of 2.88V. If the battery voltage is below 2.88V comparator will produce 0V and the relay will remain at a constant current mode connection. If the battery voltage increases above 2.88V then the comparator will produce 5V and the relay will be switched to constant voltage mode. This is our first method.

Next slide

The second switching method we planned to use is power MOSFETs. We use IRF520N (NPN) and IRF9540NL (PNP) MOSFETs for switching purposes. We select this type of MOSFETs switches for some reasons. According to their datasheet, they give switching in high power and high-speed switching applications, and they will operate 175C Operating temperature and they use simple drive requirements. The **IRF520N parameters are** 9.7A collector current @ room temperature and 100V breakdown voltage and drain source resistance is 200 mili ohms. this has a low gate threshold voltage of 4V. similarly, IRF9540NL also has the same properties. So, we use these MOSFETs in cutoff saturation regions to control our switching purpose. Also these MOSFETs are available in the srilankan market.

Over to you gajannan