EE442

End SEM

180020021

Designing the system with some basic electronics components. First, we have to **select the Relay as per the Pump voltage and current rating**.

Given pump is 3-phase 3-wire 1kW rated.

Relay coil voltage: 12V DC

And any commercially available NPN transistor

- The pump should automatically turn on if the water level in the tank decrease below 20%.

For this to happen we are going to fix a common wire as our reference water level 0.

And a wire at 20% water level. Hence 555 IC will on the water pump if level is below 20%, but again we need to stop the water pump otherwise leads to leakage of water. Hence we place a wire just above the top water level so the if level reaches below 20% the pump will be on and it will stop after it fills the tank.

Assumptions:

- 40A relay for 1kw rated water pump
- Power supply to the water pump 230Vrms, 50hz sinusoidal (Ac supply)

Design:
1. An LED will represent Pump ON/OFF.

2. 555 Timer IC to automatically Turn ON or OFF.

3. Resistors (To avoid damaging the water sensor, the LED and other components we will use appropriate resistors to decrease the current flow.)

4. Capacitors (which allows the ac current and blocks dc which is used for the LED and Relay).