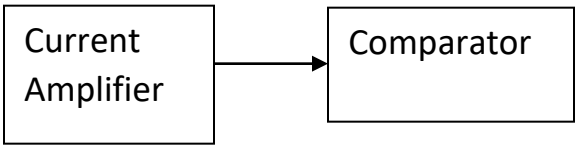
Problem Statement

The main problem is to transfer the water from water rich area to water deficient area. One of the approaches is to have two tanks in each area. One would be main storage and other would be secondary storage also known as “ample”. All these tanks would be connected by pipe networks.

Now we have a software program which checks for tanks where water is deficient. That is, it checks for water in storage tank. The water deficiency is given by a water measuring sensor. Then, by using Djkistra algorithm it finds the shortest path to all tanks. Then from the list it shortlists the area where water is also sufficient and is nearest also. Then it opens the network route for that path.

Water Measuring Sensor

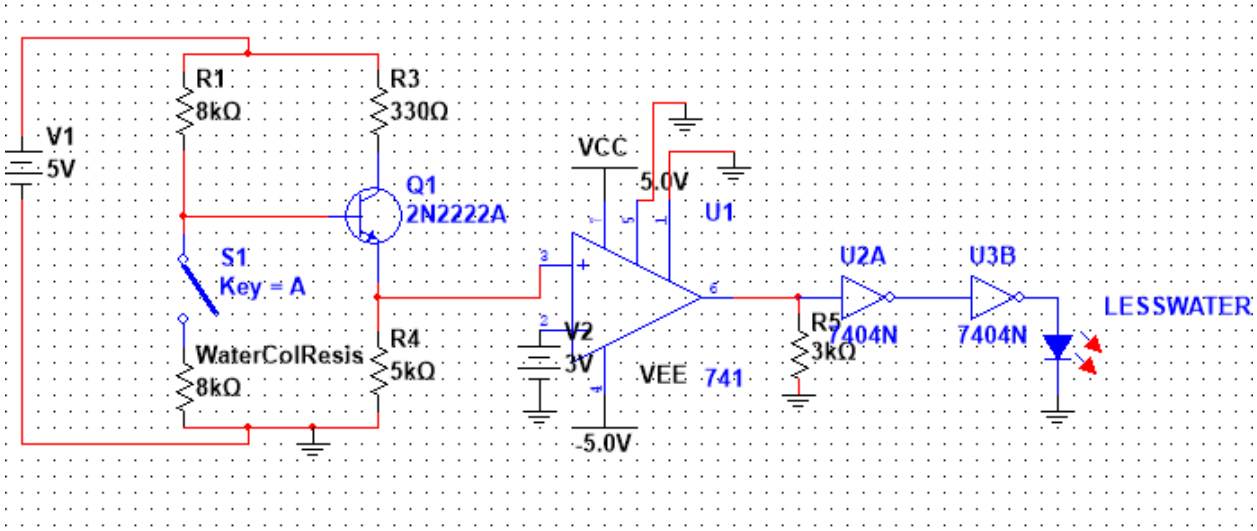
Block Diagram:



Working:

When water touches the contact plate then the circuit gets complete and less current flows. So, we amplify it and then comparator compares it with a decided threshold voltage.

Using solely comparator may cause error. The reason is comparator is unstable circuit so even a slight moisturized air may give high output so it is therefore necessary to ensure particular amplitude current flows, then amplifier amplifies it and if it crosses threshold then it is water touching else it is moisturized air.



Two not gates are used to make it logic 1 signal.

Software Working

First of all, user has to enter the whole pipe network. This is done by graph constructor python code. After this the code makes the adjacency list. Now, the code gets the status of all the tanks and fills it in the database. Then, it looks for those tanks which have water deficiency and also which have sufficient water. Then, by taking water deficiency tank as source and using Djikstra algorithm it computes the shortest path of all tanks. The algorithm returns shortest path as well as a string depicting how to reach there. After this, it calls filter function which shortlists the tank which have ample of water and is nearest also. To ensure water has filled it calls checkstatus which ensures water gets delivered. The final step is now to remove the supplier tank from database as now it has given water to deficient. The process then repeats for other deficient tanks.