Hydroponics System with IOT

**Introduction**

Hydroponics is defined as the method of cultivating plants in a water based and nutrient rich solution.

Hydroponics plant doesn’t use soil, instead the root of plant is support by an inert medium clay pellets, Rockwool, peat moss, or vermiculite.

Hydroponics system has significant advantages, one of it is great increased in growth of plants. With proper system setup, Plants grow 25 to 30% faster than the same plants grown in soil.

**Role of IOT**

Hydroponics system with IOT (Internet of things) has revolutionize method of farming as Plants grow bigger and faster because they do not have to waste its photosynthetic energy in obtaining nutrients, as it is given to them directly. And all of this only possible with proper control of pH level, nutrient solution and water temperature. Imbalance in any of the factor would cause harm to plants.

With the help of IOT we can maintain the pH, nutrient solution and temperature of inert medium, and to achieve that we need sensors like pH probe, temperature sensor and an electronic Platform like Arduino. The role of the sensors is to give current values of temperature and pH level of solution on device with the help of Arduino to the respective individual so that if any fluctuations happen, proper action can be taken. IOT plays a major role in Hydroponics farming, as the risk of plant damage is reduced to 60% with the help of it. IOT has revolutionized the method of farming and has given a new direction to it.

Future Scope of Hydroponics

**Steps of Fetching pH and Temperature value from Database to Website:**

**1.** First the data will be feed to Database through the pH sensor and Temperature sensor.

**2.** Second step is fetching data from the database, for that we will run sql Query to fetch to data which is stored in Database and show it in respective table.

**3.** The data for the Graph will also be fetched from the database which will be done by creating SqlConnectionString in Chart.

4. After Executing all the queries, we will finally be able to show respective pH and temperature value from database on our Website.