



REAL-TIME WATER QUALITY MONITORING USING PH AND EC SENSORS

To enable a farmer to continuously monitor and maintain optimal water quality for irrigation or livestock through automated sensing of pH(acidity/alkalinity) and EC (Electrical Conductivity, i.e., salinity/nutrient concentration).



Water that is too acidic, too alkaline, or overly saline can stunt plant growth, damage soil health, and reduce yield. Manual testing is slow, inconsistent, and often neglected until damage is done. A farmer needs real-time, reliable insight into water quality to prevent unseen threats.



TWO SENSORS — A PH SENSOR AND AN EC SENSOR — ARE INSTALLED IN A RESERVOIR, IRRIGATION CHANNEL, OR TANK.

- These sensors continuously monitor water quality parameters and feed data to a central system. When values deviate from acceptable thresholds, the system can trigger alerts, automated dosing, or shutdown protocols to protect crops or livestock.





FUNCTIONAL WORKFLOW

➤ CONTINUOUS SAMPLING

Sensors monitor the water at defined intervals (e.g., every 10 minutes), providing real-time readings.

➤ THRESHOLD LOGIC

- pH Range: Ideally between 5.5 – 7.0 for most crops.
- EC Range: Depends on the crop but usually 0.8 – 2.5 mS/cm.
- If either value falls outside the safe range:
 - An alert is triggered (SMS, app, display).
 - An automated correction can be activated (e.g., dosing pump to add neutralizing solution or fresh water flush).

➤ DATA LOGGING

- Store all readings for tracking water quality trends over time.
- Useful for seasonal insights, soil compatibility planning, or compliance reporting.



KEY BENEFITS



➤ RISK PREVENTION:

Avoid crop loss or livestock illness from poor water quality.

➤ PRECISION AGRICULTURE:

Tightly control nutrient uptake and root health.



➤ DATA-DRIVEN DECISIONS:

Use historical data to fine-tune fertilization or flushing schedules.

➤ RESOURCE EFFICIENCY:

Only treat water when needed, reducing chemical and water waste.

