

IoT-enabled Water Measuring Device for Open Channel Surface Irrigation System



Device installed in farmers' fields

Developed by

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RELEVANCE

- In India, more than 70% of irrigated land is irrigated by open channels with 30-40% water use efficiency.
- Volumetric measurement of water in the field channels of canal command is not available for the supply of measured water.
- An IoT-enabled water measuring device for open channel was developed to measure irrigation water volume, to supply desired quantity of water and to enhance the water productivity of canal command.

DESCRIPTION

- A modified flume with a unique throat section to ensure the critical flow was designed and calibrated through hydraulic flume testing and the flow depth sensor mounting location was decided.
- An ultrasonic sensor was mounted and the digital processing unit using the microcontroller and the data transfer protocol was standardized to make it IoT enabled.
- The device was tested to display flow depth, flow rate, and cumulative volume under different flow regimes in an open channel.

BENEFITS

- Device is portable and can be fitted in the field channel of 30 cm width and for other channels with minor modification of channel section.
- Measures the flow depth, flow rate and the total volume of water passing through the device during a given time period.
- Device is IoT enabled to store the data and display the amount of water released to the field.
- Suitable for the field channels for any canal command in India and assist the stakeholder in release of water as per the crop water demand.