Open-channel discharges evaluation by the application of smart sensors

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Abstract

Understanding a stream's or river's discharge is essential for a variety of hydrological and geomorphological applications at various sizes. However, depending on the stream environment and flow conditions, it is crucial to use the appropriate techniques and instruments. This will ensure that discharge estimations are as reliable as possible.
This study presents developed smart system for continuous measurement of open channel discharge and evaluate streamflow measurement over various techniques. This includes developed smart flow meter as flow point measurements, smart water level sensor (installed on Hydraulic Structure ? Weir) and current meters. Advantages and disadvantages of each equipment are presented to ensure that the most appropriate method can be selected. we found that smart water level sensor is more prominent once used during flood event as compared to smart flow meter and current meters, while current meters seems to show better accuracy once applied for open channel.

Keywords : Smart flow meter ,IoT sensor, Open channel flow

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