

Real Time Data Transmission to an Online Server using IoT Technology

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Real-Time Data transmission is an important activity in every mechatronic system. Nowadays, the usage of IoT (Internet of Things) is the state-of-the-art method for real-time data transmission. This paper discusses real-time data transmission from a water distribution network to an online server using *nodeMCU* (IoT device). This method facilitates rapid and accurate real-time data transmission when compared with existing manual methods. Most industries, like the National Water Supply and Drainage Board, Ceylon Electricity Board are still using manual methods for data collection and transmission, which costs a lot of money. Automatic data collection and updates to an online server using a smart IoT system can be applied to water distribution networks. This paper introduces an accurate and simple method for automatic data collecting, transmitting, analysing, and publishing which was successfully applied to the Water Supply and Drainage Board of Sri Lanka. This research work consists of four main parts. First, the water usage was read using a flow meter and update it real-time on an online server called Thingspeak using a *nodeMCU* Wi-Fi device. This online server collects water meter readings and calculates the water usage in liters and water bill in Rupees at every 10 minutes. Therefore, every 10 minutes, the user receives the water bill and water usage to his/her mobile phone. This period may be adjusted by users according to their requirements. Matlab was used to read, analyse, and calculate water usage data and the bill amount in real-time. This can be used to monitor the daily water usage and water bill. This system provides an advanced technique for water billing rather than a meter reader visits every house and calculate water bills. This saves time, government money, and labour.

Keywords: Real time data transmission, IOT, *nodeMCU* module, Thingspeak online server, Matlab