MECHANISM TO MONITOR WATER POLLUTION DISTRIBUTION AND FLOOD ALERTING SYSTEM

Manawadu Y.P.[1*], Perera E.A.R.S.[2] and Perera M.D.R.[3]

[1]Department of Biosystems Technology, Faculty of Technology, Sabaragamuwa University, Sri Lanka
[2]IFS R&D (Pvt) Ltd, Sri Lanka
[3]Department of Computer Science, Faculty of Applied Sciences, University of Sri Jayewardenepura, Sri Lanka
*yahanimanawadu@gmail.com

Sri Lanka is a country with rich of rivers throughout the country. As a result of industrialization and civilization, most of the rivers are highly polluted where water pollution is highly affected for living condition of the people. In rainy season, people who are living around the river bank had to face the threat of flood. Currently there is no proper mechanism to provide warning alert to general public regarding the flood and water contaminations in real time manner. The existing methodology to warn people about floods is done manually via electronic media which is not much effective in night time. This study proposed a wireless sensory network to monitor the water level of the river and the water quality by using water parameters such as pH, conductivity etc. collected via sensor nodes. This is a low cost internet of things (IoT) based project proposed to provide flood and water pollution warnings to general public while monitoring the river in real time manner.

The system consists of four main parts such as Data Collecting Node (DN), Base Node (BN), Monitoring Centre (MC) and Mobile Application for end users. In a defined cluster area, there is one BN and number of DNs. DN consists of water level and water quality measurement sensors and XBee-PRO RF module. DN passes the collated parameter values to the BN via a RF transmitter. For this setup, XBee-PRO RF module is used, because it supports to setup a wireless mesh network with less effort. BN consists of a GPRS module apart from the sensors and RF module. BN transfer the data which are collected from all DNs to MC via GPRS module and the collected data is uploading to the database. Based on the collected data, MC does the cognitive process in real time manner and generates forecasting notification such as threat of flood and the threat of contamination of water to end user. Mobile application which installed in the end user's mobile phone is synchronised with the MC and provide the necessary warning alerts based on the user location in real time manner.

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