LITERATURE SURVEY

IoTBasedReal-timeRiverWaterQualityMonitoringSystem

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Currentwaterqualitymonitoringsystem is a manual system with amonotonousprocessandisverytime-consuming.Thispaper proposes asensor-basedwaterqualitymonitoringsystem.ThemaincomponentsofWirelessSensorNetwork(WSN)include a micro-controller for processingthe system, communication system for inter and intra node communicationandseveralsensors.Real-timedataaccesscanbedonebyusingremotemonitoringandInternetof Things (IoT) technology. Data collected at theapart site can be displayed in a visual format on a server PC with the help ofSparkstreaminganalysisthroughSparkMLlib,Deep learning neuralnetwork models, Belief Rule Based (BRB) system and is also compared withstandardvalues.Iftheacquiredvalueisabovethe threshold valueautomatedwarningSMS alert will be sent to the agent. The uniqueness ofourproposedpaperistoobtainthewatermonitoringsystemwithhighfrequency, high mobility, and low powered. Therefore, our proposed systemwillimmensely help Bangladeshi populations to become conscious againstcontaminatedwateraswellastostoppollutingthewater.

Real-TimeWaterQualityMonitoringSystem

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Theneedforeffectiveandeﬃcientmonitoring,evaluationandcontrolofwaterqualityinresidentialareahasbecomemoredemandinginthiseraofurbanization,pollutionandpopulation growth. Ensuring safe water supply of drinking water is big challenge for moderncivilization. Traditional methods that rely on collecting water samples, testing and analyses inwaterlaboratoriesarenotonly costly but also lack capability for real-time data capture,analysesandfastdisseminationofinformationtorelevantstakeholdersformakingtimelyand

informeddecisions.Inthispaper,arealtime water quality monitoring system prototypedeveloped for water quality monitoring in Residential home is presented. The development wasprecededbyevaluationofprevailing environment including availability of cellular networkcoverage at the site of operation. The system consists of a Raspberry Pi, Analog to DigitalConverter, Waterquality measurementsensors.Itdetectswatertemperature,dissolvedoxygen,pH, and electrical conductivity in real-time and disseminates the information in graphical andtabularformatstorelevantstakeholdersthroughaweb-basedportalandmobilephoneplatforms. The experimental results show that the system has great prospect and can be usedto operate in real world environment for optimum control and protection of water resources byprovidingkeyactorswithrelevantandtimelyinformationtofacilitatequickactiontaking.

**RiverWaterQualityRobotEmbeddedwithReal-Time Monitoring System:Design and Implementation**

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New sensor capabilities and implementations are being developed by wirelesscommunication.Forenvironmentalapplications,recentdevelopmentsinsensornetworkingareessential.TheThingsInternet(IoT)allowslinksbetween different devices to share and collect data. In addition to automation,IoT expands its capabilities by using Industry 4.0 to resolve environmentalconcerns.Sincewaterisoneofthefundamentalrequirementsofhumansurvival and life underwater, some mechanism is necessary to occasionallycontrol water quality. This paper proposed an autonomous robot occupied withreal-time multisensory (pH, temperature, voltage and garbage level) for betterwater quality. The data were recorded using sensors and transmitted via Wi-FitoadesignedMITinventormobileapplicationand stored in the cloud tomonitor the water quality. The river water robot is also attached to a self-power generator using a solar cell and wind turbines. Based on the obtainedresults, it was found that the pH of the tested river water in the range of 2-4.6,which considered to be highly acidic. In conclusion, the designed robot hasshown significant functionality in the real-time receiving and transmitted datawith no human interfering required