DEVELOPMENT OF ENVIRONMENTAL REMOTE SENSING FOR WATER POLLUTION MONITORING SYSTEM CASE STUDY AT SIAK RIVER, INDONESIA

INTRODUCTION

Water pollution is one of caused makes environment unclean, river is one of medium use by many community and industry in many countries including Indonesia. This research to develop a system that be able to monitor water quality at Siak river in Riau Province, Indonesia. Some sensors installed at some points of river then all the information send to backend system for monitoring as well as to CEReS data center for record. The information collection will help community to know quality of water and for respective government to do action in case of abnormal water quality is happen.

PROBLEM AND OBJECTIVE

The goal of this research is to develop water pollutant monitoring system by install several of sensors at a point of Siak River, then all the information will share to the community. A display of information about water quality will install at community center and all the people know the information including river water level.

Figure 1. Siak River, Riau Indonesia.

SOLUTION AND INNOVATION

To collect common water quality parameters, some sensors related to parameters installed such as water temperature, pH electrical conductivity and dissolved oxygen. The distance from sensors point at river quite far to the monitoring center then a communication system to transmit river water information is developing for effective communication. WSNs technology used in this system to collect data from sensor nodes and forward to sensor gateway then to monitoring center for the analysis and forward the information to local government and community.

Figure 2. Water pollutant sensors installed in river area.

RESULTS

This research gain knowledge and contribute new invention for water pollutant monitoring system, data collection and study of sensor placement location for effective sensing including design a new sensor that be able to collect accurate data. Development of a new method of communication system for effective data transmission and sharing is one of intention in this research.

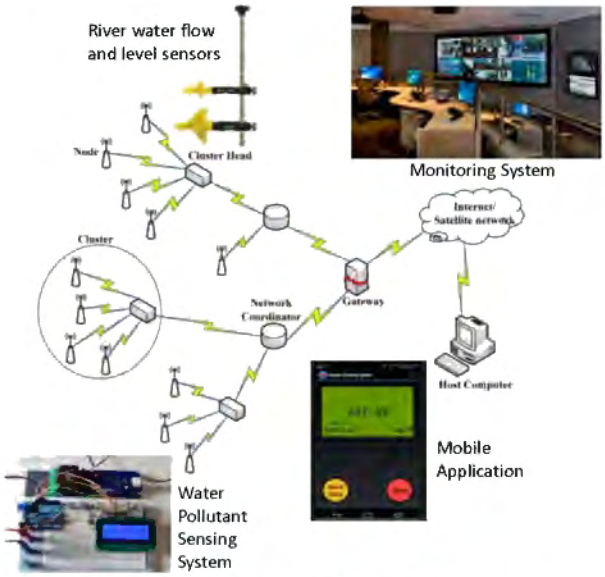

Figure 3. Architecture of WSNs monitoring system.

NOVELTY

A smart system with intelligent detection of water pollutant is one of novelty, beside that system be able to analyze behavior of water pollutant data and send alert when major changes happen.

BENEFITS AND COMMERCIALIZATION

Development and Innovation in the used of water pollutant monitoring system.

Benefit

- Real-time water monitoring system.
- Multi parameter of water pollutant indicator.
- Data analyse and record for a few year.
- Mobile application for remote monitoring system.

Commercialization

- Water supply industries.
- Environmental government agency.
- Industries with usage much water.
- Housing developer for residence water supply.



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The 21th CEReS Symposium on Environmental Remote Sensing
Chiba University, Japan