

ABSTRACT

Awareness of the effects of flooding is the basis for building monitoring systems in flooded areas. In this study, the design of river surface monitoring and the influence of tributaries on flood areas will be carried out. The monitoring system carried out is to measure the distance of the river surface to the ultrasonic sensor placed on it. The use of ultrasonic sensors is chosen because measurements utilize the reflection of sound waves so that the response and measurement results are obtained quickly. By knowing the speed of the sound wave and the reflection time of the wave, we get the distance of the object to the sensor. The accuracy of sensor measurements against a standard measuring instrument is 96.41%. An analysis of differences in the water level of the Cikaro river towards the Citarum river leading to flood-prone areas was carried out. The water flow of the Cikaro tributary to the river in flood-prone areas has an average duration of 40 minutes. Measurement data is presented through a website to the hall guard to identify the status of the river conditions. Information in the form of altitude, debit, river level status, and battery information is sent automatically and periodically to the data center by the microcontroller and GPRS module. Users can manually reset the system by sending a certain code through the website to overcome the failure of sending information in a long time without having to go to the sensor location.

Keywords: Ultrasonic Sensor, water level, monitoring system, Citarum River