Flood Warning and Monitoring System Using NodeMCU Technology

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ABSTRACT

Floods are one of the most destructive natural catastrophes, causing significant losses because of high rate of property destruction and death. This happens because the residents in flood prone areas are not aware about the current flood water level that keeps increasing when heavy rain happens. The flood victims should be well informed of the current flood water levels so that the victim can prepare to evacuate and also save the important belongings. In order to solve the problems, Flood Warning and Monitoring System using NodeMCU Technology is developed. Flood Warning and Monitoring System using NodeMCU is a personal flood monitoring system that has featured user can know the current flood water level by monitor it through Blynk application and for the warning system, the user can check the Telegram Bot that have been made specially for warning system in the Telegram application. The system is developed using ESP8266 NodeMCU as microcontroller that can connect to the Wi-Fi, ultrasonic sensor (HC-SR04) and 12C LCD. Users can request the current flood water level via Telegram and can monitor it through Blynk application as long the NodeMCU and user smartphone are connected to the internet. At the Telegram, there are three levels of flood water level which are, normal water level, warning water level and dangerous water level. Dangerous water level will send through Telegram with "Please evacuate immediately" to notify the user. Flood Monitoring and Warning System using NodeMCU is simple but it is effective to the resident in flood prone area to be prepared. The functionality test, prototype test and connectivity test have produced positive results and it has the potential to be enhanced. It is recommended to the future researcher to make the system not only personal use but it can be used by all the resident in flood prone area and create automatic call to Fire Station if the flood water level reached dangerous.

Keywords: ESP8266, NodeMCU, Warning system, Monitoring system, Flood, Ultrasonic sensor, Arduino IDE