

Flood monitoring and early warning system for Pakistan

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Abstract

Pakistan has been a flood disaster hit state from decades with 20 major floods reported from 1950 till 2012. These floods affected an approximate area of 0.6 million square kilometers and killing about 11 thousand people with Rs 0.39 billion damage to the economy (federal flood commission). It is being observed that the floods are more damaging in the last decade and this damage is increasing with time, affecting all areas from housing, health, education, communication to agriculture and industrial sector. This increase in damage is mainly due to the absence of a disaster management system. In view of this, we have established an open source technology based system for monitoring the river water level along with an early warning system in case of any flood. The system has a level measuring electronic system on each of the gauging point. The real time monitoring is coordinated to the base station through GSM module. There is an automated application monitors the readings and in case of a flood generates an alarm. The alarm triggers the early warning system, sending short messages through GSM SMS service to the residents of the areas in imminent danger of flood. The system incorporates mobile numbers database from the local telecommunication companies to identify the residents that might be warned of the approaching flood. Additionally for research and pattern analysis study, the data is also stored in the database with the acquisition time stamp. This data has also been published on the internet for public knowledge and use.