Wireless Smart Sensor Networks for Real-Time Warning System of Flash Floods and Torrents in KSA

Abstract

The dangers of torrents and floods that take place repeatedly in many countries of the world, Saudi Arabia is one of them, are impossible to be fully prevented or controlled. But it is possible to limit its effects and minimize its losses. That's by defining the endangered places and sitting suitable maps for them as well as conducting researches and studies that enhance the real-time flash flood forecasting and monitoring. So that, practical researches and studies are required specifically which can predict the risk before it happens to reduce its harms and damages and save humans and their properties. In this research, we will propose a wireless sensor network for real-time flood monitoring and warning system. The real-time flood monitoring system based on wireless smart sensors measure hydrological data and capture remote images. The system determine the expected reaching time, affected zones and danger intensity based on hydrological and geographic models then it automatically launches the warning processes. This system warn people for the sudden torrents and their expected dangers in order to take the necessary safety procedures against its risks. That leads to save people and their properties and reduce the human and material losses that may occur. Warning process starts on the
suitable time before disaster happens.

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