Emergency Response System

CS 6235 Project Report

Emergency Response System (ERS) is a framework that provides fast and efficient real-time processing and dispatch of distress signals to relevant authorities via SMS. An Arduino-based wearable panic button and an Android service running in the background on a phone are used to demonstrate the use of ERS framework.

Nataraj Mocherla & Sandeep Manchem

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Abstract

Emergency Response System (ERS) is a framework that provides quick processing and dispatch of distress signals via SMS. We use Node.js, an event-driven, non-blocking I/O model perfectly suited for large-scale data intensive real-time applications that run across distributed devices, to implement the backend server that receives an emergency message via SMS, processes it and forwards the augmented message to relevant authorities who can then help the person who sent the distress signal. We have implemented one use-case of this framework wherein an emergency signal is sent from a wearable Arduino-based panic button which is connected to the user's phone via Bluetooth, the lightweight Android service running on the phone in the background then quickly adds location information to the signal and sends an SMS to the backend server. The server processes the SMS and augments it with user information along with human readable location of the user and sends it the relevant Police Authorities. Subsequently, the Android service sends tracking information to the server which plots the location of the phone in real-time over a map which the Police can access and act accordingly.