

EMERGENCY NOTIFYING SYSTEMS ALERTING SYSTEM

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Abstract— Cellular text messaging services are increasingly being relied upon to disseminate critical information during emergencies. Accordingly, a wide range of organizations including colleges and universities now partner with third-party providers that promise to improve physical security by rapidly delivering such messages. Unfortunately, these products do not work as advertised due to limitations of cellular infrastructure and therefore provide a false sense of security to their users. In this paper, we perform the first extensive investigation and characterization of the limitations of an Emergency Alert System (EAS) using text messages as a security incident response mechanism. We show emergency alert systems built on text messaging not only can meet the 10 minute delivery requirement mandated by the WARN Act, but also potentially cause other voice and SMS traffic to be blocked at rates upward of 80 percent. We then show that our results are representative of reality by comparing them to a number of documented but not previously understood failures. Finally, we analyze a targeted messaging mechanism as a means of efficiently using currently deployed infrastructure and third-party EAS. In so doing, we demonstrate that this increasingly deployed security infrastructure does not achieve its stated requirements for large populations. We use distress signaling to achieve our goal.

In order for distress signaling to be the most effective, two parameters must be communicated:

- Alert or notification of a distress in progress
- Position or location (or localization or pinpointing) of the party in distress.

This invention relates to signal devices and relates more particularly to a distress signal device particularly well suited for disclosing the location of a person who is lost. A general object of this invention is to provide a practical, dependable distress signal or rescue signal that automatically goes into effective operation when the button is pressed.

Keywords: GPS(Global Positioning System), GSM(Global System for Mobile Communication), Image capturing device, Embedded system(any one programming language), Microcontroller, Power Supply.

I. INTRODUCTION

When a person or a group of people are assaulted by someone or something, it can be a problem for him/her/them to call for help. When an aircraft is hijacked by the terrorists or pirates will not be known at the time of hijack. There is a possibility, where there might be no one else in the vicinity when that person is attacked, or an aircraft is hijacked or taken over, making it an improbable situation for that person to shout out for help. We also can say that when you're in distress, it isn't practical to reach for your phone, unlock it, recall your exact location and then call for help in all situations.

OURSYSTEM:

What we are trying to do with our system is to provide a practical solution for the above discussed problem, wherein the person being assaulted can signal for help at the press of a button,

which can be reached for easily. On pressing the button, an emergency message will be sent out to the concerned authorities, one or more dear ones and also any people who are in the vicinity of the assault. It works as follows

- The technology used is a combination of Global System for Communications (GSM) and a Global Positioning System (GPS) chip. The GSM chip is used for sending alarms and location coordinates while Short Message Service (SMS) and other data is sent via General Packet Radio Service (GPRS). These are integrated in a wrist band.
- We will integrate an image capturing device into our module via Bluetooth.
- When in distress, the user can reach out for the band and activate the device which in turn will trigger the image capturing device to capture the image and send it back to the wristband via Bluetooth.
- On receiving the captured image, the gsm module of our wristband will send out the details of the person in distress along with the GPS coordinates as a Short Message Service(SMS) and the image via the GPRS to the police control center and preset contacts.

II. OBJECTIVE OF OUR SYSTEM

The main objective of the project is to help people in distress by allowing them to send a distress signal along with their current location and also an image if necessary.

So what we are trying to do with our system is to provide a practical solution wherein the user can signal for help at the press of a button, which can be reached for easily, when in distress.

Once activated, a signal containing the exact GPS location is sent via mobile phone network to our headquarters as well as to people in the vicinity who can immediately come to the rescue. The ability to act quickly in situations like these can literally be the difference between life and death. Within minutes of the attack, the signal is also sent out to global social media platforms, allowing people everywhere to immediately get involved and put pressure on the regime in the event of an attack.

III. EXISTING SYSTEM

The Federal Communications Commission proposed and adopted the network structure, operational procedures and technical requirements in 2007 and 2008 in response to the *Warning, Alert, and Response Network (WARN) Act* passed by Congress in 2006, which allocated \$106 million to fund the program. CMAS will allow federal agencies to accept and aggregate alerts from the President of the United States, the National Weather Service (NWS) and emergency operations centres, and send the alerts to participating wireless providers who will distribute the alerts to their customers with compatible devices via Cell Broadcast, a technology similar to SMS text messages that simultaneously delivers messages to all phones using a cell tower instead of individual recipients.

The government plans to issue three types of alerts through this system:

- Alerts issued by the President of the United States.
- Alerts involving imminent threats to safety of life, issued in two different categories: extreme threats and severe threats
- AMBER Alerts

When the alert is received, a sound is played if the ringer is on. On nearly all devices, the Emergency Alert System radio/TV attention signal sounds in a predetermined pattern. The system is a collaborative effort between the Federal Emergency Management Agency (FEMA), the Department of Homeland Security Science and Technology Directorate (DHS S&T), the Alliance for Telecommunications Industry Solutions (ATIS), and the Telecommunications Industry Association(TIA)

IV. DISADVANTAGES

WEA doesn't track the location, it is like a weather alerts that are seen on the local TVs. WEAs are broadcast from area cell towers to mobile devices in the area. Every WEA-capable phone within range receives the message, just like TV that shows the emergency weather alert if it is turned on. But, the TV stations, like WEA, don't know exactly who is tuned in. one may get very few WEA messages, or you may receive frequent messages when conditions change during an emergency. The number of messages depends on the number of imminent threats to life or property in your area.

V. ADVANTAGES OF OUR SYSTEM

- Device is a small component may be a wrist watch or an neck chain, which are portable and are easy to use
- Easy to reach for, when assaulted.
- Camera module helps in capturing a picture of the assaulting person or the surroundings of the person being assaulted.
- Also helpful when we are lost in the middle of nowhere as the device sends the GPS coordinates.
- This device can also be used as a medical aid. whenever an accidents occur at remote place one can use this device for reaching out for help.
- Low power consuming modules.

VI. HARDWARE REQUIREMENTS

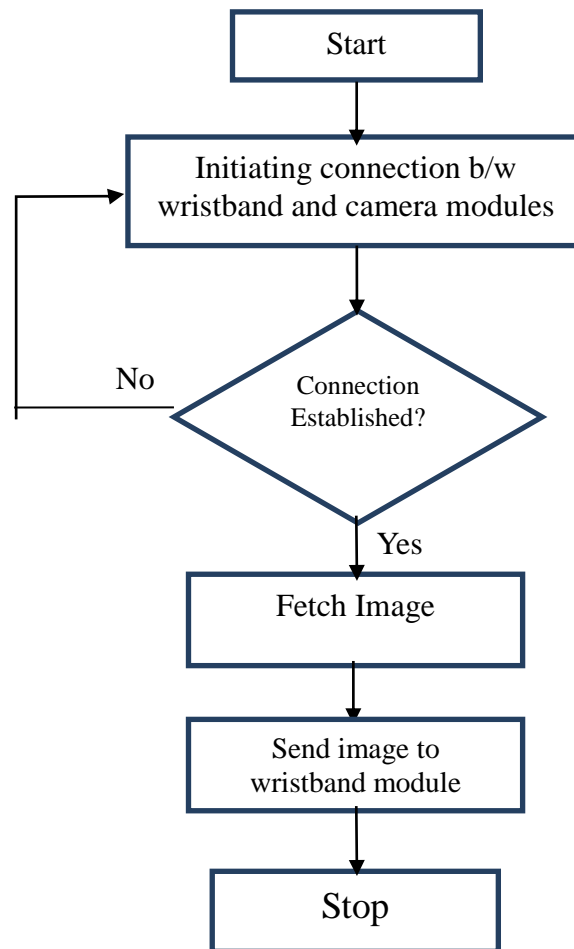
- Wristband Module
 - ✓ Micro Controller
 - ✓ GPS Module
 - ✓ Bluetooth Module
 - ✓ Power Source
- Camera Module
 - ✓ Image capturing device
 - ✓ Bluetooth Module
 - ✓ Power source

VII. SOFTWARE REQUIREMENTS

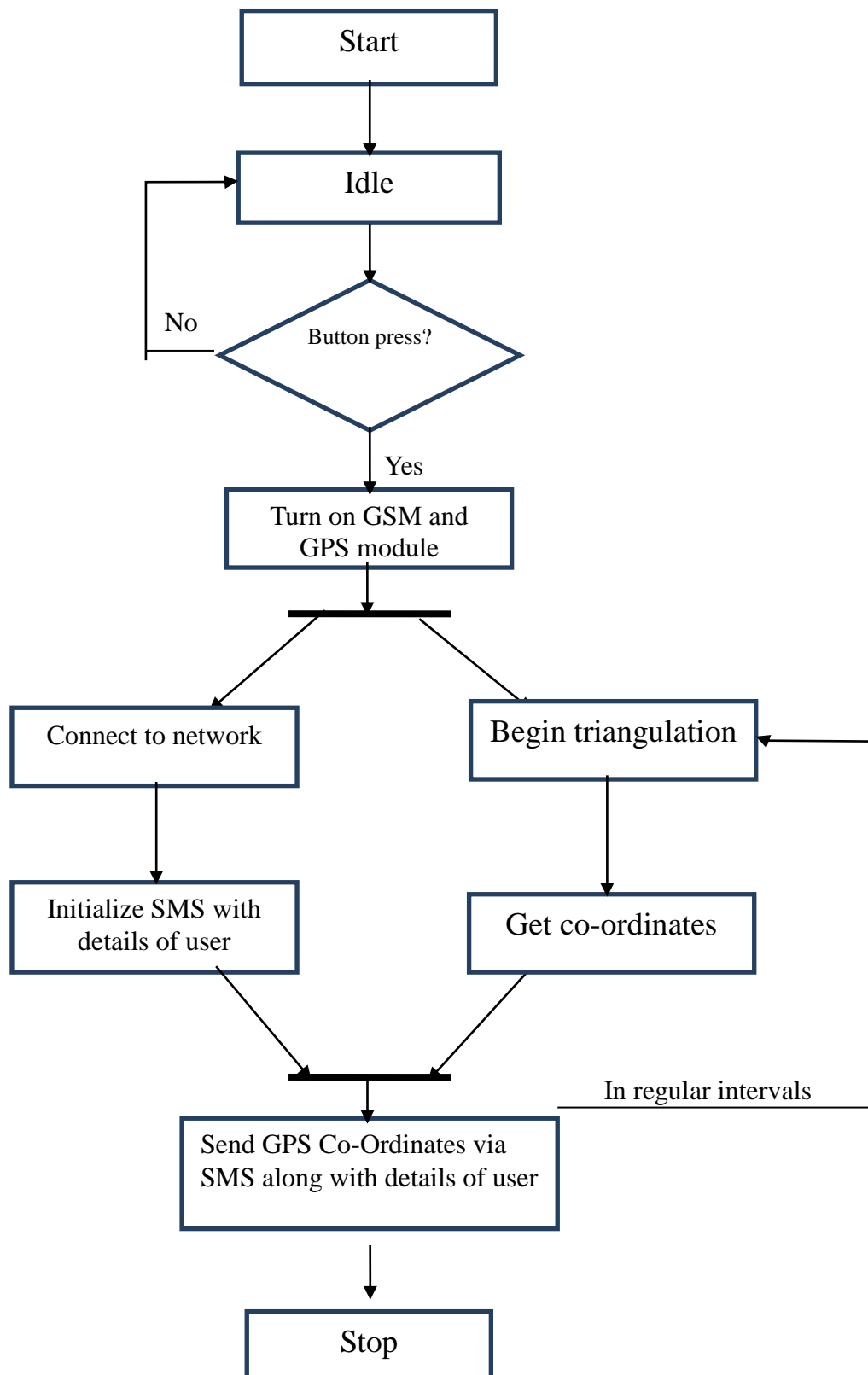
- C Program
- Embedded Program
- Google Maps
- Javascript

VIII. DESIGN DIAGRAM

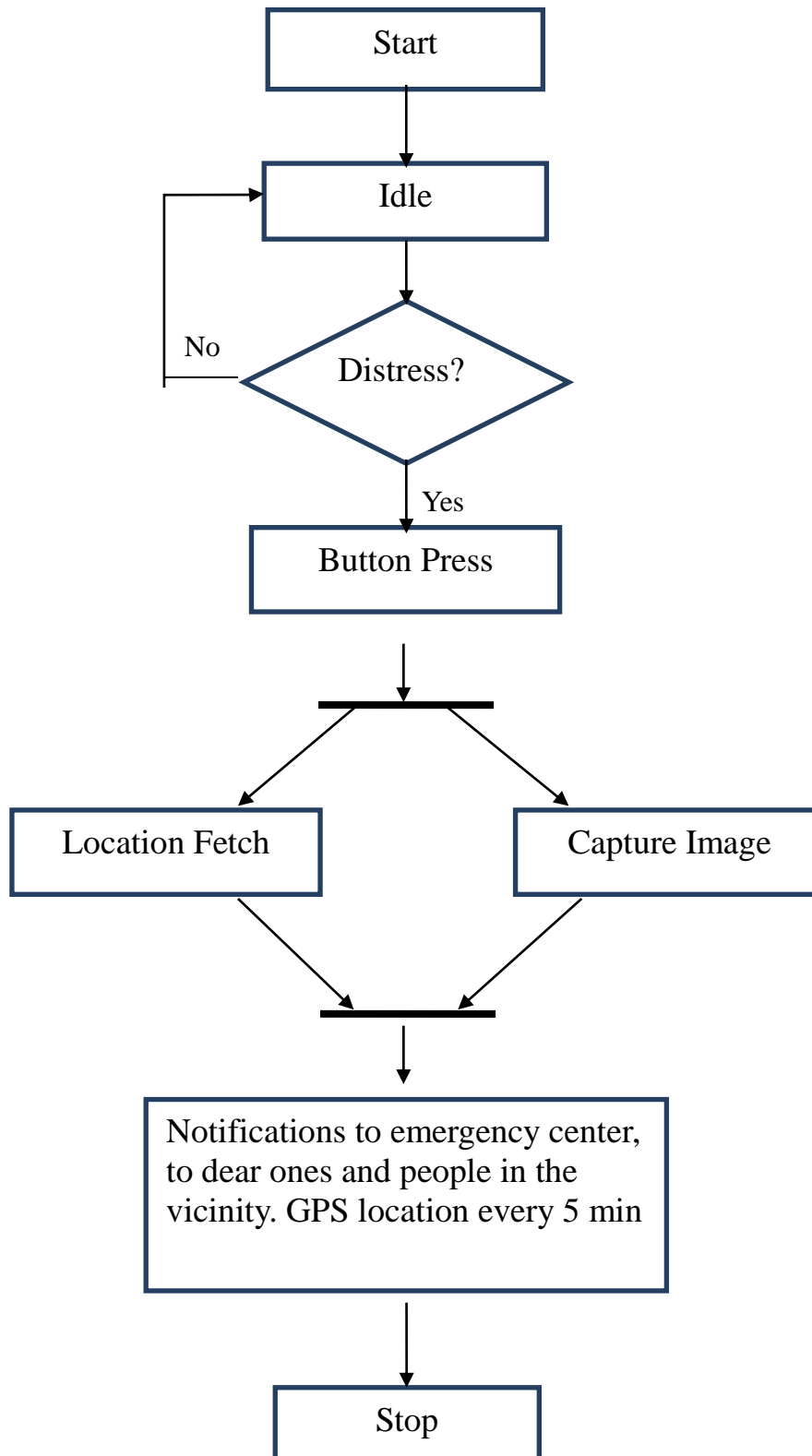
BLUETOOTH MODULE



GSM and GPS Modules:



IX. FLOW DIAGRAM



X. SEQUENCE OF ACTIONS

- Initially the system will be in an idle state.
- When the person senses danger or any other situation where he require any sort of help presses the button of the device
- Present location of that person is fetched using GPS module, which locates the location for every five minutes.
- Image of the person in trouble and his surroundings are captured and sent along with the location of that person.
- Notifications to emergency center, to dear ones and people in the vicinity.

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