Decision Support Systems (DSS) DV2530
Project Proposal

A Mobile Phone based Intelligent Scoring Approach for Assessment of Critical Illness

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1. Division of Labor

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2. Problem Description

There are many softwares to detect an accident location, if any. But if the victim cannot contact the necessary help service due to anonymous reasons at the moment, there should be some kind of help available.
There are appliances like Jordan attached to vehicles; but it is not a really feasible solution, as it demands completely new equipment. Many people may not be interested in this solution either; that may be due to many reasons out of which it's cost seemed to be the most concerning issue at the time of its' release. Hence, there is a need of an appropriate system, which can help a person at the time of emergency.
In our design for the decision system, we assume that the person affecting or anyone surrounding the accident can place a call or a text message at the least from the location of emergency. This call for duty is received by a Traffic Controlling Agent, which is an artificially intelligent decision making system, and the necessary services reach the location where help is needed.

Assumptions and Dependencies:

Cellular networks are increasingly becoming the primary means of communication during emergencies. Riding the widely held perception that text messaging is reliable method of rapidly distributing messages, a large number of colleges, universities, and municipalities have spent millions of dollars to deploy third-party EAS over cellular systems.

Recovery mechanism simply does not work as advertised. Through modeling, a series of experiments and corroborating evidence from real-world tests, we have shown that these networks cannot meet the 10 minute alert goal mandated by the public EAS charter and the WARN Act. Moreover, we have demonstrated that the extra text messaging traffic generated by third-party EAS will cause congestion in the network and may potentially block upward of 80 percent of normal requests, potentially including calls between emergency responders or the public to 9-1-1 services.

The system thus designed would:

- Detect the location of the victim.
- Interact efficiently with the user.
- Alert the nearest public help service- Police, Fire and Ambulance.
- Take care that the necessary help is delivered to the victim.

3. DSS Architecture

The DSS architecture provides a brief description about the working of the proposed system and the different models that would be applied on the database to get the desired output.
The total architecture of the system can be divided into 4 modules. They are:

1. Client Module
2. GPS Module
3. Server Module
4. GSM and Database Module.

3.1. Database Description

The database contains all the users subscribed in the service with their receiving message, (received message will be stored in the database) after receiving the message; we find the location of the corresponding accident location. GSM modem is a specialized type of modem, which accepts a SIM card, and operated over a subscription to a mobile operator, just like mobile phone. From the mobile operator perspective, a GSM modem looks just like a mobile phone.

The data management system in this DSS includes:

- DSS Database
- Database management system
- Data directory
- Query facility

3.2 Model Description

This is a decision support system, which contains a knowledge-based subsystem; hence, it can be called as an Intelligent DSS.

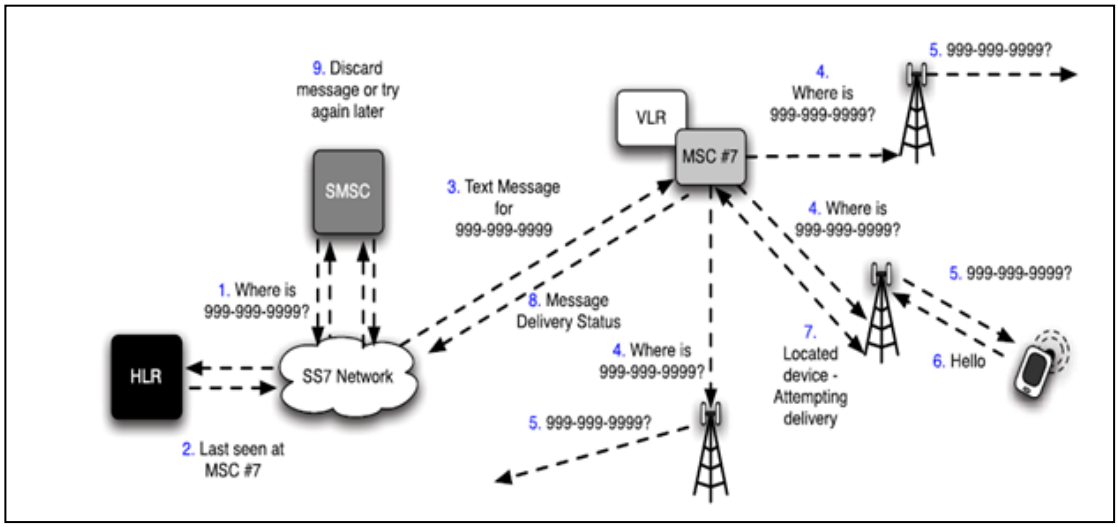

Fig 1: A working model of the proposed system.

The model described above includes quantitative sub models that have analytical capabilities and can be done with an appropriate software management in a DSS.

It contains tactical, operational and analytical models.

i. **Analytical Model**: The artificially intelligent will analyze the requirement of service at the accident area.
ii. **Operational Model**: The analyzed requirement is sent a notification asking for its action at the scene. (Police, Ambulance and Fire)

iii. **Tactical Model:** The nearest service stations to the accident are immediately notified and the required service is sent as soon as possible.

4. Explanation of the implementation

The first part of the model- Client Module is where the client requests for help in a particular situation.
The second module- GPS Module is where the artificially intelligent system takes the location of the victim using the latitude and longitude from the place where the call was made.
The third part- Server Module uses the alert message and analyses the type of emergency.
The last module- GSM and Database use the already existing data in the system to help the needy.

4.1 Tools to be used

Hardware requirements:

- Main processor: >2GHZ
- RAM: 512
- Hard Disk: 80 GB
- Ports: 1 Serial port
- GSM Modem
- Operating System: Windows XP
- JAVA Supported (jar) GPRS and GPS enabled mobile phone.

We are using minimal hardware requirement because of the fact that every person may or may not have advanced technology at their hand and usage at a minimal level ensures better quality and usage as the technology is advanced.

Software requirements:

- DEFOLD for showcasing and refactoring the tools used.
- The software created should support all platforms. Hence, we prefer to use Linux for programming and Windows XP for front-end work of developing interfaces.
- The languages used are Java, JSP, Servlets
- My SQL for database
- Tomcat server for web container.

4.2 Techniques to be used

This system is a mixture of

- Communication-driven DSS
- Data driven DSS
- Knowledge driven DSS, and
- Model driven DSS.

Hence, appropriate techniques will be used in analyzing the algorithms and the end product will be developed accordingly

5. User Interface

This application includes GUI standards or product family style guides that are to be followed, screen layout constraints, buttons and functions that will appear on every screen, error message display standards and many more features.
This application will provide every user with a comfort that makes it all the more usable.