Applied GIS

GROWTH OF AMBULANCE SERVICE APPLICATIONSSUMMARY

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ABSTRACT- Accidents have become a big problem these days. In case of an emergency, the ambulance should get there on time. As part of our project, we're making an app that allow users to book an ambulance and allow ambulance drivers to list their availability. So, you can be sure that the medical service will be quick and effective. We also keep an eye on the patient's vital signs while they are in the ambulance. It has three parts: an Android phone, a Wi-Fi dongle, MQTT (IoT) for Arduino IDE, and an Arduino Uno processor.

Index Terms – Temperature sensor, heartbeat sensor, GPS modem, Wi-Fi, and microcontroller.

I.INTRODUCTION

These days, there are a lot more ways to get around, and every day there are a lot of crashes on the roads. So, the need to keep an eye on the patient's health has grown. To fix these kinds of problems, GPS and Wi-Fi technologies were used to create a system and an app that let users know when an ambulance is nearby. This method takes care of all of these issues. A method for sending car location information is needed so that seriously ill patients and accident victims can get medical help right away. The hospital needs a centralized tracking system that knows where the accident victim's car and paramedics are. The doctor needs to know about the patient's physical and physiological state in order to make the right choice about what drugs to give the patient and where to take them. Because of this, the people who work in the ambulance and the tracking station need to be able to talk to each other. The need can be met by using a system in the ambulance that sends the patient's position and state by collecting data like heart rate, temperature, and other factors. Biomedical monitors must be built into the system so that the state of each patient can be sent. Wireless transmission, which sends data and information, links all of the devices together. Even with this, the system will work better and respond faster if GPS and Wi-Fi are used for faster data lines. It's also important to keep an eye on traffic when transporting emergency patients, which saves valuable time.

You can save your answer. Adding all of these conditions to the system will make it very useful for treating patients in an emergency while they are being transported. The proposed idea meets all the needs by having two units: an ambulance unit and a monitoring unit. When biological monitors are connected, the ambulance becomes smart. This system has a Global Positioning System (GPS) that will get information from satellites about where it is and what it's doing. These days, tracking systems are very important. This can be used to keep an eye on soldiers, find a stolen car, and do many other things. A global positioning system (GPS) and a Wi-Fi module are built into the microcontroller-based device to send data to the cloud. This method is easy for anyone to use, install, and get to, and it can also be used for other things. After download, the system will use a web app (an Android-based app) to find the target on Google Maps. The method lets you keep an eye on the goal at all times, in any weather.

II.LITERATURE SURVEY

As people have become more spoiled, more four-wheelers have replaced two-wheelers. More traffic has also been caused by industry (tech parks) and the need for more room. In turn, this brings more people. In paper[1], a clever traffic control system is talked about.This paper talks about how the patient's health is tracked in an ambulance and sent to the hospital. At the same time, the driver of the ambulance controls the traffic lights so that the patient gets to the hospital as quickly as possible. Health data like ECG, heart rate, and body temperature are estimated by hardware and then saved on a PC in the ambulance using serial connection. From there, they are sent to the hospital. In order to control flow, RF transmission is used. When the program that controls the traffic lights is being made, the amount of traffic is also taken into account. Putting together a health monitoring system and a traffic control system could save a life.

The techniques used include the photoplethysmography method for measuring heart rate.Through serial transmission, the microprocessor sends parameters to the PC.People use RF to help keep traffic moving. Because the information of the patient's health is sent to the doctor through the computer, the main problem with this method is fixed.

In paper[2], they talked about a way to set up traffic lights to turn on and off automatically, so the ambulance could go through all of the intersections quickly.A record is kept on the server for each node so that it is easy to get to. So, each machine will have its own ID that can be used to access the info. The server tells the ambulance the fastest way to get to the hospital.The methods involve a sensor in the car picking up on the accident and the Global Positioning System (GPS) keeping track of where the accident happened. It tells the rescue section where the crash is through GSM (Global System for Mobile Communications). When an accident happens, the buzzer makes a noise. The main unit figures out which ambulance is closest to the accident and which route takes the least amount of time between the accident site, the ambulance, and the closest hospital. In this case, radio methods are used to send data. The center unit figures out the fastest way for the ambulance to get to the hospital.It gets data from the computer with the help of the Wi-Fi module. This Wi-Fi module makes it easy to move the information to the cloud server and make changes quickly.

In paper[3], a new method called location-based delivery (LBD) is introduced. LBD uses SMS and GPS, and it also creates a true system for tracking people's exact locations. Location forecast and dynamic cutoff are the two major suggested methods that LBD uses. Location forecast uses the target's present location, speed of movement, and heading to guess where it will go next.The target sends a short message to the tracker to let it know where it is now when the difference between its expected location and its real location goes over a certain level.

The biggest problem with this method is that if the network fails because of too many people using it, the text message won't get to the person. We put in place a GPS gadget that sends exact location data over Wi-Fi so that this could happen.

In paper[4], the design of a simple device that measures heart rate and body temperature using a microcontroller is explained. The data is shown on an LCD screen. IRD (Infra-Red Device) monitors are used to measure the heart rate of the person or body from the middle finger. The saline level is also constantly checked for different amounts. When the heart rate and body temperature go above the set level, the gadget sounds a warning.We use Arduino instead of a microcontroller to keep an eye on the patient's health. Because Arduino is easy to use and program, even for people who are just starting out. Compared to other microprocessor systems, Arduino boards aren't too expensive.

In paper[5], the health factors of the patient are sent to the doctor's computer using GSM and GPS. The Atmega-16 microprocessor is used to handle the data from the temperature and heart rate sensors. The information is then sent to the doctor via text message.

Through the website, we sent the information to the doctor over Wi-Fi. where the doctor will use the unique ID and password to log in. In addition, the Android app tells you where the ambulance is.

In paper[6], they talk about a web-based app that helps people find the closest hospital and rescue based on where they are. It helps the user schedule or call an ambulance to the scene of the accident so that the patient can get to the hospital quickly and safely, saving their life. The person can keep track of the emergency no matter where they are. Someone can use this link to find the location of the ambulance and the nearby hospital.

There is one big problem with this method: the only way for smart gadgets to talk to each other is through the World Wide Web. Users also have trouble getting to the website in an emergency. And we put it into action by offering medical service through the Android app. Because it's easy to log in to Android.

III. CONCLUSIONS

At traffic light crossings, where other cars have to huddle to make room for ambulances, crashes are common. This method will cut down on those accidents. The suggested method would make it easier to find important health details. It gives information about the transportation unit as well as health information about patients, which helps doctors treat them more quickly in an emergency.The method for tracking ambulances can save many lives.Forget the days when people would call an ambulance and ask it to come to their house to take a sick person to the hospital. Since everything is easy for users to get to,It would save a lot of lives because the user can track the rescue from anywhere.

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