IoT Enabled Vehicle Emergency System

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Abstract: **Internet of Things is an upcoming technology which is going to change the manner in which we live. In IoT vision, every last 'thing' has the capacity of conversing with one another that brings the possibility of Internet of Everything as a general rule. Various IoT administrations can make our everyday life less demanding, more responsive, and even more secure. Utilizing IoT in planning some uncommon events can make it a lifeline framework. In this paper, we have exhibited an IoT powered system that can give emergency communication and location info to the appropriate authorities in any event that a car meets a terrible mischance or some other crisis circumstance. Instantly after the accident, the system begins consequently. Contingent on sort of accidents (police and security, fire and protect, therapeutic, or common) it starts functioning and offers basic data e.g. area data, with fitting server/specialist. Updates of realtime location following and so on have likewise been incorporated to the proposed framework to screen the correct condition continuously. The system model has been structured with Raspberry Pi 3 Model B and wifi module**

Keywords: **IoT, AWS, Realtime, Emergency Services, Raspberry Pi**

I INTRODUCTION

At the present time we are living in the period of Internet and quickly moving towards a savvy planet where each gadget will be associated with one another.

Internet of Things (IoT) is the Innovation helping us to accomplish the objective of a brilliant world. IoT and Cyber framework can change the vision of our method for living. Every single Developing nation are meaning to change their urban communities into Smart City by taking a few tasks. For instance, the legislature of India has taken an activity called Digitalisation of India to associate the country to Internet.

As the vehicles are getting to be less expensive step by step, their number is expanding exponentially as mapped against the settled number of streets. Presently this has brought about higher likelihood of mishaps out and about costing numerous lives, for which the essential measures ought to be taken.

In recent times, Most of the vehicles out are present with built in safety features such as airbags, Auto Braking System and other safety measures. These system may or may not protect the passengers from accident. But what is certain is that no matter what the accident is, People are emotionally hurt and also physically hurt on the spot. What they really want is an emergency squad at the spot of the accident. The emergency team such as police, ambulance and fire/emergency station is alerted only if a third person calls them. If the accident takes place in a deserted area or at an odd time where the passenger movement is low, It might prove to cost the lives of people suffered. Hence, To overcome this flaw system, we must have an automatic alert system which alerts during accident.

In this paper, we have utilized the idea of a smart city to give a real existence emergency request framework to a brilliant vehicle in any sort of crisis circumstance happened on street. The vast majority of the cutting edge autos are all around furnished with a few sensors, mechanical gadgets, programming, inserted equipment and so on to pre-recognize crashes or crashes and keep away from them. 'safety and security' is one of the most critical criteria of a vehicle. These sorts of present day safety frameworks are especially valuable and dependable for auto drivers and also travelers on street. Be that as it may, those security frameworks have one noteworthy confinement. These frameworks must be utilized to maintain a strategic distance from crashes. Yet, lamentably, if the framework neglects to maintain a strategic distance from an mischance or there is some other crisis circumstance other than mishap, those frameworks have no arrangement to manage them. On the off chance that the driver becomes ill while driving or some street blockage happens or on the other hand some mechanical issue happens, those frameworks cannot help. An investigation says that in India 161,526 individuals were slaughtered on street in 2017 by various sorts of street mishaps. The vast majority of them will be executed by sending protect groups to the accident area. So clearly whether the mischance data can be sent to the individual specialists instantly after a circumstance has happened a portion of the lives could be spared.

II. RELATED WORKS AND RESEARCH MOTIVATION

The Internet of Things is breaking contemporary ground for car producers by acquainting completely new layers with the ordinary thought of a car. This update — the associated, smart car — comes as a progressive methodology for the overall nations to drive and keep to endure with the planet around at the indistinguishable time. By giving a staggering kind of film demonstrate benefits and associated car applications for drivers, the car division can possibly turn into a remarkable IoT champion and pump up reception of IoT cloud administrations appropriation among car mortgage holders and walkers alike.

If IoT may be used for recreational services in an exceedingly automotive, then why not focus it on the security of the car?. this is often the most reason behind the implementation of this paper.

This Paper uses IoT to connect the sensors attached in the vehicle to trigger whenever it reaches the threshold value and send notification to the necessary people and agency. This paper focuses on using IoT to send notification whenever an accident happens. This can not only save the life but also increase the overall safety of the cars.

A student of Harvard have presented a system that can distinguish a accident by an advanced cell's sensors, e.g. accelerometer sensor and so on and the telephone utilizes its 3G network to transmit accident data. Be that as it may, the framework isn't coordinated into the vehicle and furthermore not completely automated what's more, at some point needs third party to send emergency crisis data alongside photographs. To conquer these significant bottlenecks looked by any Smart Traffic or Accident dealing with System, we have proposed a solution which use the intensity of adjacent sensors to trigger help at whatever point a mishap happens. With the presentation of IPv6, unique IPs can be distributed to each furthermore, every sensor which can happen to be available in the close-by area. These sensors when connect with each other outcome in the arrangement of Internet of Things. Internet of Things is fundamentally a gathering of substances which can cooperate with one another what's more, can produce result without altogether relying upon the accessibility of web. The substances associated with IoT here are sensors which can undoubtedly trade little measure of data. At whatever point any mishap will happen, the vehicle sensors will identify it and inform the adjacent sensors about the mischance. These sensors go under the shelter of IoT itself.

3. LITERATURE SURVEY

In a shrewd city each gadget or better to state each 'thing' is associated 24×7 to the Omnipresent system . They can convey to one another paying little respect to their correspondence conventions and equipment/programming foundation. Machine to machine (M2M) correspondence is quickly developing to make the machines more keen and partook in nature. In this paper, we have utilized the idea of a keen city to give a real existence friend in need framework to a brilliant vehicle in any sort of crisis circumstance happened on street. A large portion of the advanced autos are all around outfitted with a few sensors, mechanical gadgets, programming, implanted equipment and so on to pre-distinguish effects or crashes and keep up a vital separation from them. 'Prosperity and security' is a champion among the most indispensable criteria of a vehicle.These sorts of present day wellbeing frameworks are particularly valuable and solid for auto drivers and also travelers on street. In any case, those security frameworks have one noteworthy restriction. These frameworks must be utilized to maintain a strategic distance from accidents. In any case, tragically, if the framework neglects to dodge a mishap or there is some other crisis circumstance other than mischance, those frameworks have no arrangement to manage them. In the event that the driver becomes ill while driving or some street blockage happens or some mechanical issue happens, those frameworks cannot help. An investigation says that in India 141,526 individuals were executed on street in 2014 by various sorts of street mishaps . The vast majority of them were murdered because generally landing of protect groups to the mischance area. So clearly whether the mischance data can be sent to the separate experts quickly after a circumstance has happened a portion of the lives could be spared.

4. IMPLEMENTATION AND DISCUSSION

This project utilize the stunning AWS IoT alongside SNS, DynamoDB and Lambda for this undertaking. AWS IoT empowers correspondence between Internet-associated vehicle-inserted gadgets and the AWS cover over MQTT. About alarm administrations, AWS SNS is utilized for cautioning an included individual by means of E-mail and Real-time Framework handle an ongoing informing errand. DynomoDB is utilized for store mishap data, for example, auto number, time, scope and longitude. Essentially, AWS Lambda play a job of a director who conjures alternate administrations.Setup the Raspberry Pi 2.Connect and Flash the Raspberry Pi Image. Download and install WiringPi.Setup AWS IOT C SDK.

Create AWS Environment

Setup the AWS IoT

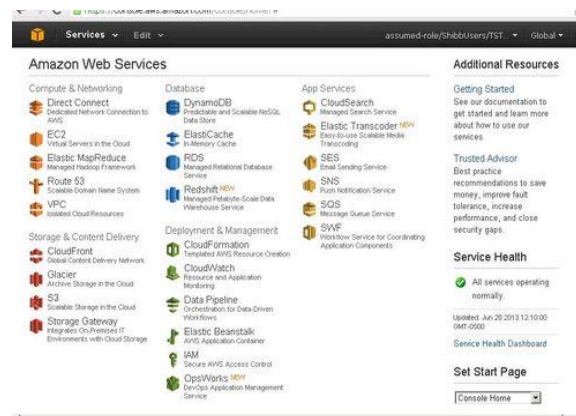Login to the Amazon Web Service Page. Then, select Amazon Web Service Page Internet of Things service.

Fig 4.1 Setup AWS IoT

Create a thing and intialize its name and attributes.

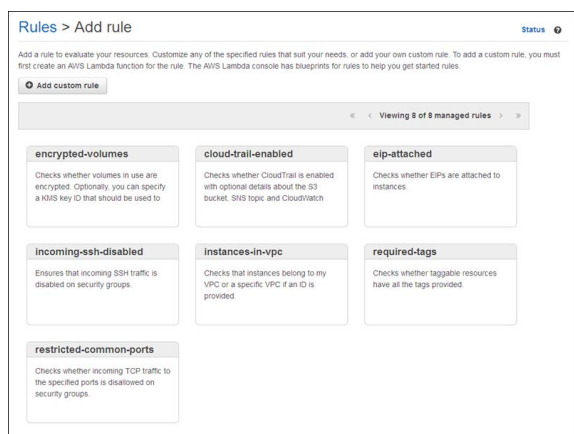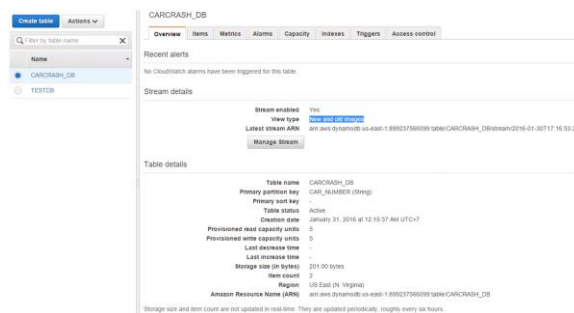**Fig 4.2** Create a thing

Creation of Rule

Fig 4.3 Create a rule

DynamoDB Setup

Select Create table. Type Table name and Primary key.

Fig 4.4 DynamoDB Setup

Create the Lambda Function and Testing.

Login to the Amazon AWS Console. Then, select AWS Lambda service.Select create a Lambda function. Then, configure function. (Source file's in the code section).Configure following Input test event. Test Lambda function.
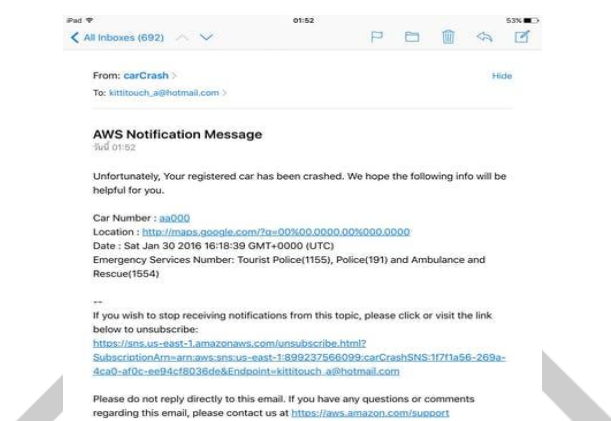

Fig 4.8 Build a Thing's Agent

Fig 4.5 Testing AWS Notification.

Now, AWS environment is completely ready for the system. Next, we will set up Real-time Framework.Setup Real-time Framework.Register, Type Subscription name.Note Key and PKey.Build and run the Thing's Agent.Download source file and make it on Raspberry Pi 2 (Source file's in the code section). View the yield on the Monitor.
Generally speaking back-end framework is presently totally made. At that point, we will go into collecting the model auto. Gather the model car.Collecting the correct parts

5. RESULT

Proposed vehicle emergency alert system is able to send the message automatically to the control room with all relevant information of an emergency. The emergency location is sent, which shows in the map, helps the rescue team to reach the location at earliest. All nearby rescue centers are shown in the map and also the nearest one is calculated from the database. An automatic message is sent to them.The initial information taken by the car sensor can help the authorities to understand the situation.Compared to other systems in the car industry, it is a fully automated system that can automatically find out nearest rescue centers and send emergency message to them. Not only accident, this system provides other four types of emergency options to the driver for other common emergencies that can take place on road.
The crux of this project is obtained using the pressure sensor, Wifi module integrated with the Raspberry pi. Raspberry software was used to incorporate coding onto the microprocessor. A real time accident can be detected and message will be sent from the system in-built in the vehicle with the help from Amazon Web Services.Success rate depends on the network. Results obtained were accurate. It supports the design which has the benefit of lesser cost, compactness and easy expansibility.

6. CONCLUSION AND FUTURE WORKS

The proposed framework has accomplished more prominent execution and vigor. And furthermore utilizes the lesser power segments with the end goal to recoup the battery control. With the progression of science and innovation in day today life the significance of vehicle wellbeing has been expanded. The principle need is being given when mischance occurs, with the goal that the injured lives can be gone to in lesser time by the sparing group. Therefore the framework was produced to identify the mischance and give assistance to the harmed party by protect framework. This undertaking presents Shrewd vehicle observing framework with warning to the to the versatile numbers. The proposed Shrewd vehicle observing framework can track geological data consequently and sends a ready SMS in regards to mischance. Trial work has been done painstakingly. The outcomes showed clarifies that the framework is more exact and proficient. This made the undertaking more easy to use and solid. The proposed technique is confirmed to be very valuable for the car business

The future work of the proposed framework is to distinguish the kind of the mishap and which crisis administrations to contact as indicated by the mischance, closest to the area.

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