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Smart System Based Safety Devices for Toddler Protection &Tracking

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ABSTRACT-Child safety is major concern as more number of crimes and sexual harassments on children and women are frequently reported nowadays. To avoid this we have developed a smart IoT device for child tracking and monitoring system is to help the parents to know about the current scenario of their child. The system is developed using Massachusetts Institute of Technology (MIT) application inventor, which is linked with firebase to store the user credentials for the security purpose, this app must be installed in user mobile phone and also it has GPS module, programmed in python and interfaced with child's temperature. The important novelty of the work is that the gadget mechanically indicators the parent/caretaker via sending SMS, when on the spot interest is required for the baby at some point of emergency. The above ensure the safety and tracking of the child.

KEYWORDS – GPS, MIT app inventor, Firebase, Child Safety, SMS

I. INTRODUCTION

Internet of Things (IOT) plays a major role in every day to day life, IoT devices are smart devices, which are able to take decisions by sensing the environment around the device. With the help of sensor technology, availability of internet connected de vices; data analysis algorithms make IoT devices to act smart in emergency situations without human interventions. In different fields IoT devices are used such as agriculture, medical, industrial, security and communication applications. This systems are useful within a system to do deeper automation, analysis, and integration. It can also contributes to technology by advances in software, hardware and modern tools, even uses existing and upcoming technology in the fields of sensing, networking and robotics. IoT brings global changes by its advanced elements in the social, economic, and political impact of the users.

Nowadays, women and children are facing various issues like sexual assaults. Such violence will definitely have huge impact on the lives of victim. Which also affects their health and their psychological balance. All kinds of violence keep on increasing day by day. Even school children are kidnapped and sexually abused. We are living in a society where a nine month's old girl child doesn't have security, the child was kidnapped, raped and then murdered. On witnessing those violations against women, its impulses us to do something for women and children safety.

Internet based solution to aid parents to track their children in real time. Many devices are connected with a single device through channels of internet. The concerned device is connected to server via internet. By this device it can be used by parents to track their Children or for women safety. So, in this project we have planned to propose an application which will act as a tool by which it can provide security and ensures the safety of the women and the children.

II. EXISTING SYSTEM

In the existing system, voice recognition is used by which the alert command is been set in the application when there is any emergency situation occurs or even any change in child general condition like oxygen level it will alert the parent/caretaker about the current situation. Once the alert notification is sent to the parent they can report the location.
Here, it can also include a feature like whenever there is alert notification from application it should automatically connect to the nearby police station so that they rescue the child from the emergency situation, by including this feature parents can that their child is at the safest place.
To include this feature we must initially inbuilt the automatic feature to the application to connect this to police station. The application which is developed must have the registered information of the parent/caretaker so that it can easy to

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send the alert notification automatically, and it will have the feature to change the information of the parent like changing the password for security purpose.

III. PROPOSED SOLUTION

A.MIT Application

The implementation of Massachusetts Institute of Technology (MIT) app inventor is very much useful for child's safety and tracking the current location of the child with the help of some notification to the user, since the project is based on IoT we have to store the user information for security purpose. The MIT app inventor is categorized into two parts that is the frontend and backend in which the whole operation of the application is fully dependent on the above mention part, this app should installed by the parent/caretaker to know the child's environment and also the location.

Nowadays crimes rate on child has been increased a lot especially in urban areas the awareness on sexual harassment is noticeable by the people and many private organization step forward to join hands with people to reduces crime rate. In this system the app plays a major role in society which is interfaced with Node red application, firebase to know the physical status of the child, the physical parameters like body temperature, heart beat if suppose the body temperature of the child gets increased its noticeable to the parent through notification via email-id . This MIT application was inspired by the government which is initiated for women, this app is incorporated with many parameters to know about the child movement.

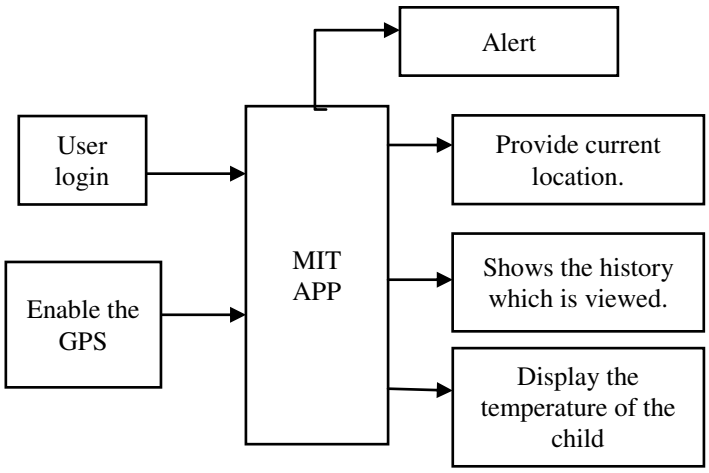

Figure. 1 Working of the application.

By the fig.1 we can analysis the operation of MIT app inventor, user can be a parent/caretaker who can login their details with some password for security purpose if incase of any emergency purpose, the application must able to allow the third party to access the app.

B. Tools Used:

Software Requirements:

1. IBM IOT Cloud Platform
2. Node Red
3. MIT App Inventor
4. Firebase
5. Cloud ant DB

Language Used:

1. Python
2. C Language

IV. METHODOLOGY

This paper is mainly focused on child safety with help of android app under the platform of MIT app inventor was developed and installed by the parent/caretaker.

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This paper mainly consists of the following,

1. Live Tracking:

The live tracking can be done with the help of GPS module which can enable by the user in their mobile phone, we have design the application to enable the GPS by this we can easily view the current location of the child.

2. Display the physical parameter:

With the help node red platform we can easily designed the blocks for measuring the body temperature of the child. This physical parameter is very much important for the parent to know about the child health and well-being.

3. Allowance of third party:

When the mobile phone of the parent is not under network area he/she can allow the third party i.e. relatives, friends to use the app which was exclusively designed for child tracking. At the bingeing of designing the application we must able to allow the third party persons.

4. Role of GPS:

The main role GPS is track the current location of the child and also send the information about the location in which the child stays.

5. Display the nearby landmark:

The main motive of displaying the nearby landmark is get easy access of the location which can reduce the time consumption.

A. Software Specification:

In this methodology of the system we have incorporated the software like firebase, cloud ant DB, IBM Watson platform to store the personal details of the parent to access the operation without the entry of third party. The above mentioned platform are for security needs and also keep the personal data in a secured manner.

B. Architecture diagram of the system:

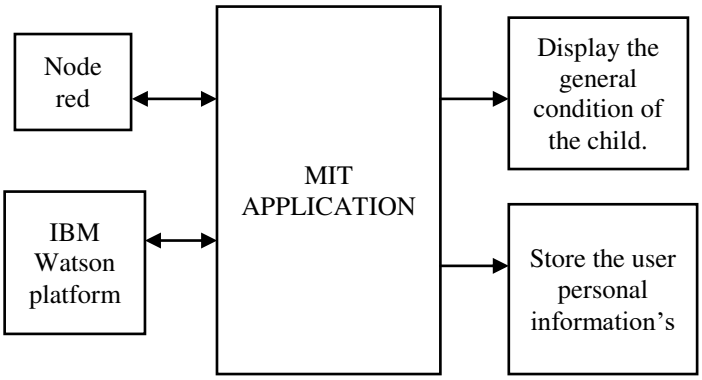

Figure. 2 Various platform involved in the developed application.

By the flow diagram of the system we can easily come know that the application is interfaced with platform to successfully run its operation without any error, for this system accuracy is very much important because to know about correct location of the child if suppose there is any misallocation it may get difficult for the parent to guess the correct place of the child.

With the help of node red application we can easily find the general condition of the child like body temperature, heartbeat so on. The role of IBM Watson platform is to store the information of the parent in a secured manner. For every parent they always make sure that their children in a safest place with good health condition. By this system parent will have less anxiety towards the child, this is not only for the children it is also useful for the women who are in working.

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V. RESULTS

This is the first page of the app which we have developed in which it displays the user credentials to login.

Figure.3 User login credential's to access the application.

This is the second page of the app in which we can track the current location of the child with the help of GPS this below figure.4 will show the result

Figure. 4 Enable the GPS to track the location of the child.

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While enabling the GPS it will automatically display the location of the child and it directs the notification to the parent/caretaker. Location tracking can be very useful for the parent to find their child easily, GPS is one main feature which must be include in all the safety gadgets, application, it can also save the time consumption of the parent and they will be in less tension about their child. It detects the location and tracks the children. It will have the location of school if the current location of the children is not same with school, Location it send the current location of the children. Here we can view the results which is displayed on child tracking app.

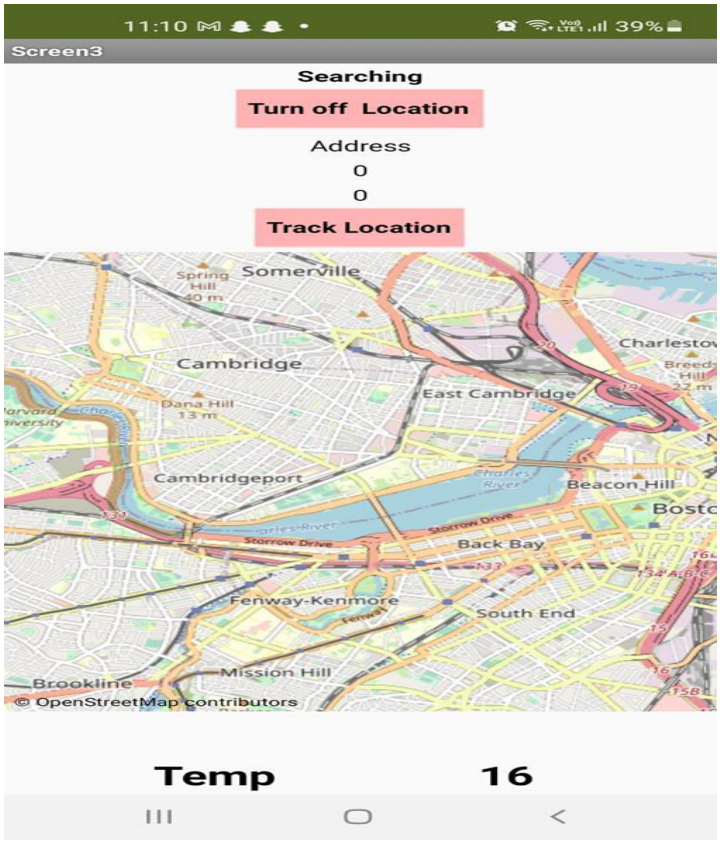

Figure.5 Display the general condition of the child.

By the above fig we can detect the general condition of the child, which can useful for the parent to know about their child health condition.

VI. ADVANTAGES

- The main advantage of this system is to safe guard the child's at any situation
- The proposed system is behaviorally feasible and cannot cause any harm in the environments.
- The project would be beneficial because it satisfies the need of the customer.
- The project is free from any political issue this means the project cannot interfere with any political issue and in reverse case any political issue cannot interfere with the project.
- By this project working parents are more beneficial because they can monitor their child at any time.
- The added advantage of this proposed system is to know about the child's body temperature and also as a parent they view the current location of the child's
- Since we use accurate sensing materials the necessary data are gathered in technical way due to this controlling of children status and check their security is also technically feasible.
- Parents will be more stress free and less anxiety about their child.
- This can reduce the child abuse in society.

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VII. CONCLUSION

By this project we have concluded that we can monitor the child in any environment with the help of this app that has been created, especially for working parents it is very useful way to watch them without their presence.Nowadays there lots of child abuse happening all over the world, to reduce this there are various technology evolved to invent many project to safeguard the children.
In this project we have create the child tracking app under the MIT app inventor, by this way we can monitor each and every movement of the child's, here we have inserted the temperature sensor and location tracking in child tracking app to see the information about the child's and one of the special feature which we have inserted in our project is to know about information about current location of child

VIII. FUTURE SCOPE

In future, the currently proposed system can be improvised by adding other parameters that is required for children. The system can be developed further by implementing additional health monitoring sensors like, blood pressure, respiration rate. The system accuracy can also be improved by increasing the trustworthiness of the device to avoid any discrepancies, as in medical and healthcare, a minute error may cost a life. Emergency calling feature can be incorporated wherein women or child under panic circumstances can contact police for assistance. SMS can be sent to more than one individual.

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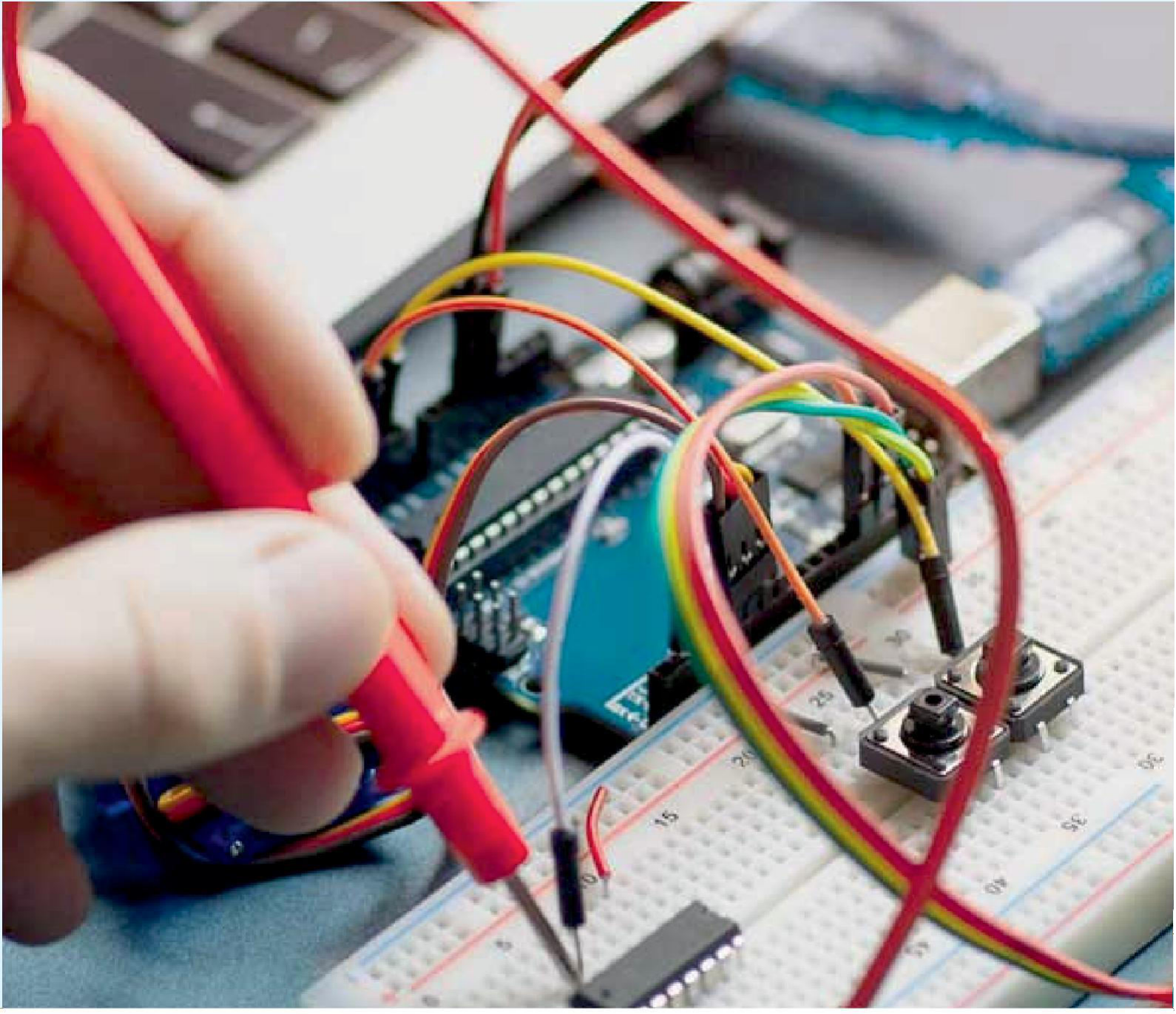

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