

Security Watch: A step towards child safety¹Vikram Khandelwal, Assistant Professor, Poornima Group of Institutions, Jaipur²Chandan Kumar Dubey, Assistant Professor, Poornima Group of Institutions, Jaipur³Ravi, B.Tech. Student, Poornima Group of Institutions, Jaipur**Abstract**

This paper proposes an idea dealing with tracking of children with the help of A Wrist Watch. The biggest advantage of such device or such watch is it's not that costly. As well as this is easy to use and have many advantages. Today majorly all parents wants a device which can easily helps in tacking the children as well as they need a system which can help their children in emergency. So the proposed methodology combines both of these as with the help of the proposed device the parents can track their child as well as if child feels he/she is not safe or in emergency, simply pressing a emergency button given on the watch will send the current location (GPS Location) of child to the parents phone as a text message.

Keywords: GSM, GPS, SMS**Introduction**

As we all lives in a country where the kidnapping cases are rising day by day as well as all the parents are mostly busy in their own life, so in such era we need some solution/idea/device which can take care of children.

As In the following device we will need some hardware and some level of coding or we can say the software. So the device can be termed under the roof of embedded system (Combination of Hardware and Software both). Such system plays a important role in development of infrastructures and helping man kind in their different tasks.

We need a kind of device which can help parents for taking care of the child as well as can help the child itself in emergency conditions.

As all the devices which are available in markets provides a limited range technique because they are using either Bluetooth or Wireless fidelity as the medium of communication. Another problem with already available devices are they need to separate devices one as the sender or child's device and another as the receiver or parents device.

The device operates as when the child will press the emergency button then the GPS location will be send by the GSM Module to the parents Mobile Number (Given as a feed while programming the device). The special part about this device is, it don't require any special tracking devices along with it.

The microcontroller is programmed in a way like when any parents want the live location of their child; they'll request the same by text message on the number inserted in child's watch. In response the micro controller is programmed in a way that whenever it will receive a proper request massage (A fixed statement will be programmed in the device) then it will take the current location of watch and pass the same location to parents.

Implementation

As the paper proposes the idea of having a tracking device in a wrist watch so that it's easy to wear, children loves watches and watch is the thing which usually ignored by kidnappers. So we can rely on the idea of having watch is form

of such smart devices. As in this the major role will be of the micro controller that it will be responsible for all kind of actions against any activity wither by the device or by the phone it is connected.

Firstly let's try to understand the architecture of the system. As the microcontroller will be the brain of the system and further all the components have their specific tasks. The GSM (Global System for Mobile Communication) will be responsible for the communication of the device with other devices. The GPS will be responsible for tracking the latitude and longitude at every instant of time.

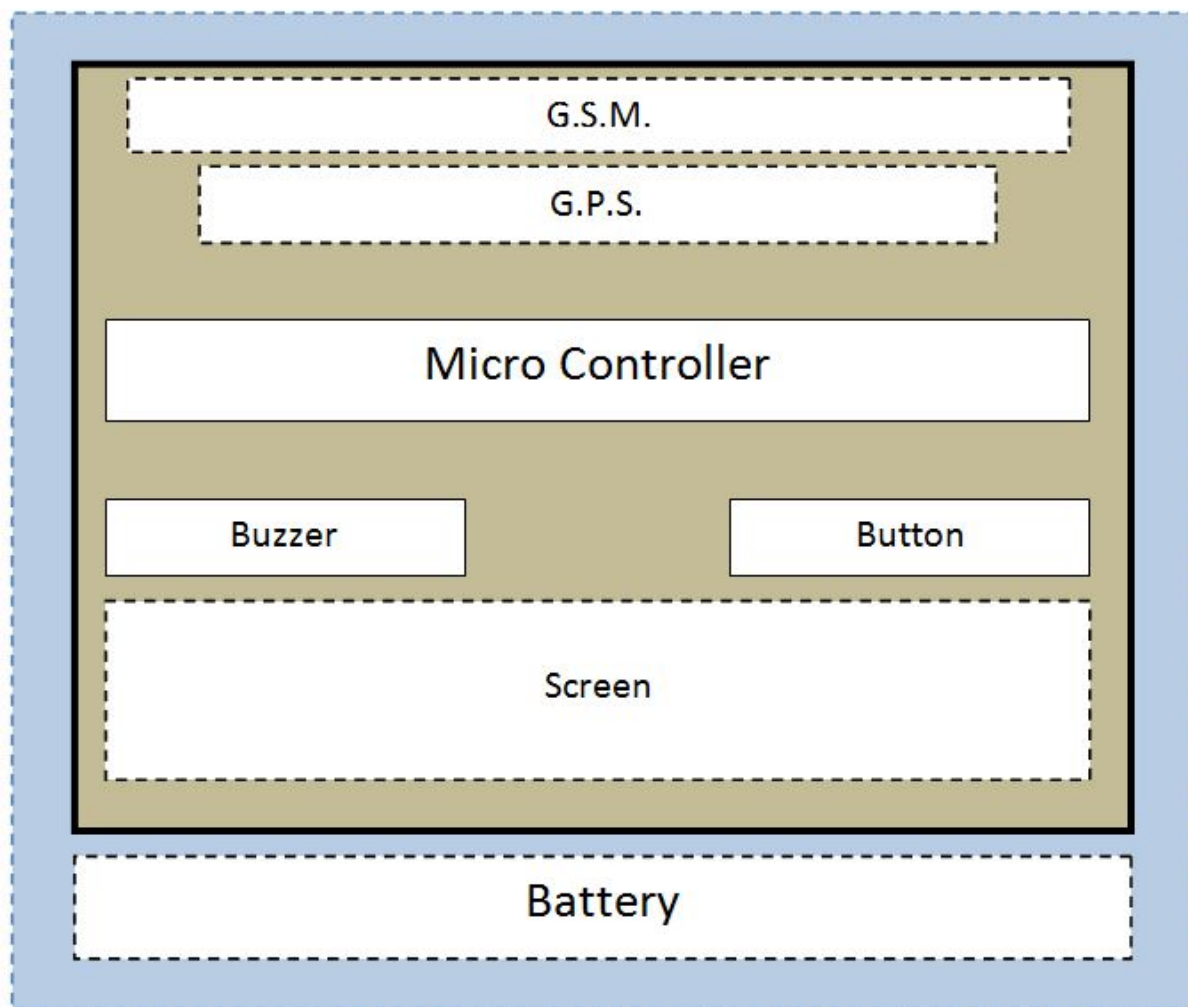


Figure 1: Architecture of proposed system

System Overview

The proposed device has a look of a normal wrist watch. As this watch display the general time and able to perform special tasks too. The proposed system has following components in it. All the unit components are used in a systematic manner to reduce the size as well as to reduce the cost of the device. All the unit components are famed in a way that chip size must be same to the watch base size. So the components used are like

- 1. Screen:** As the device also need to work as the simple watch, for the application purpose so screen is the important and outer most part of the device.
- 2. Buzzer:** At the time when the child will feel unsafe for he/she is in danger then the pressing emergency button required to produce a sound which can simply aware the near about people that he/she is not safe. So for that purpose we need a buzzer to buzz and make a annoying sound.
- 3. Micro Controller:** As the device needs to work as a watch as well as a mind which need to reply to parents request. We need a device which can be programmed. Hence we'll use the required microcontroller so that it can be simply coded with the help of any programming language.
- 4. Emergency Button:** When any child will face any unsafe situation of have any kind of emergency, especially when the parents are not near around then he need a system which can alert the near about people as well as a system which can send a alert over parent's phone that I am unsafe. So to tackle with such situations we need an emergency button on the watch.
- 5. GPS Module:** As when we need to locate anything on earth then we need the GPS location of the same which tells about the longitude and latitude (The Positional System on earth). Hence we are using GPS Module inside the watch so that GPS location can be fetched.
- 6. GSM Module:** As the proposed device is using SMS or Text Message as a medium of communication so we need a unit module which can be operated by using any network SIM card for receiving and sending of massages. Hence the GSM Module will be used to be an intermediate or the communicating module of the device.
- 7. Battery:** As for working of all the components and the device we will need a energy source as to run all the electric device we need electricity. As in the system we will need a 5V energy Source.

Result

Hence The proposed device can help the parents in tracking their Childs as well helps the children in the emergency situation by sending their current location to the parents phone as well as by giving a buzz sound it aware the near about peoples too.

Conclusion

The Tracking of children can be done with the help of wrist watch as well as he parents can monitor the live location of the child. To save the child in emergency situation, we can also send the current location of child by pressing an Emergency button given on the watch. As well as if parents desire to monitor the child through multiple devices, we can simple send the data to multiple nodes. Taking care of all boundary conditions we are using GSM technology so that in emergency or even in low signals the location can be sent to parent device. As well a buzzer is also connected with the Emergency button so that after pressing the button, the near about people can also help the child.

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