

# Child Safety Wearable Device

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## Abstract:

The main objective of our project is to safe guard little children. Now-a-days many children are kidnapped or lost their ways or fell into bore wells. .To avoid this we are building Child wearable safety device which is a device that completely monitors child's location and surrounding temperature , light intensity and humidity . A guardian can know the details of the child's location by his mobile and gets the warning if the child's surrounding temperature , humidity and light intensity is crosses beyond the general optimal values.

## I Introduction:

The motivation for our project comes from increasing risks of losing little children lives in different cases such as kidnaps, losing their ways or fell into bore wells . Recently, two children are kidnapped and murdered in New Delhi. According to NRCB report kidnap cases are increased by 7.5% today i.e., 82,999 cases are reported. Along with this many kids fell into bore wells and losing their lives. Recently a toddler fell into bore well in Hyderabad. so our idea is to implement preventive measures that are to be done automatically.



In today's world everything can be known to us by using internet. We can solve the problem by using internet,.

When a child gets outside we fix the device to them in the form of a wearable gadget. By this we can get the location of the child in an app. Along with this we also get the child's surrounding temperature,

light intensity as child fell into bore well the temperature in bore wells is high and also light intensity is almost zero the parents get an alert to mobile to their twitter accounts so that everyone can see .

The device contains Node MCU module, which connects to LDR sensor, GPS module and DHT11 sensor and an alarm system. The data from these sensors will activate the node MCU which in-turn activates the, alarm system, and GPS module it will automatically shares location to cloud.

## II Existing method:

The existing methods involves smart watches which are almost equal to a smart watch with this we can get the child's location. And another devices which are based on Bluetooth and gets the child location

### Limitations:

Only GPS location can be tracked. GPS may or may not be tracked at the depth of bore wells. Alerting guardian was not implemented this may lead to loss of lives.

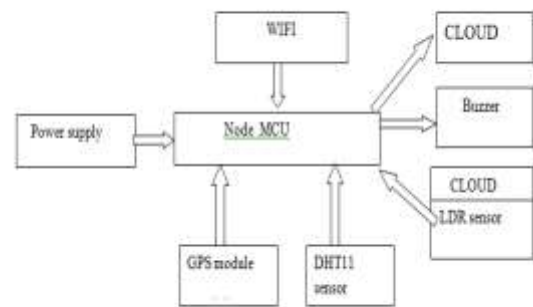
## III Proposed method:

The proposed idea consists of a GPS module which continuously monitors the child's location. It also contains DHT11 sensor and a LDR sensor which monitors surrounding temperature and light intensity. When temperature and light intensity crosses the optimum values the device gets activated and alerts the guardian with a message and a guardian can gets the location in an app .

### Advantages:

- Preventive measures are implemented with a minimum amount of time.
- Human loss and property loss will be reduced.
- Information will reach at right time by using GPS module.

## IV Block diagram:



Fig(b): Block diagram

### Explanation:

The above is the block diagram of our device which safe guard little children.It consists of Power supply, WIFI hotspot, GPS module, DHT11 sensor, LDR sensor, buzzer, Node MCU.Node MCU comes to active state when power supply is given to it. And it is supplied by using a USB cable.GPS module,DHT11 sensor and LDR sensor is connected to the node MCU and node MCU contains a inbuilt WIFI module and by using hotspot wifi is connected. And the data is collected from the sensor and by using gps module the location will be shared and buzzer gets activated and a message is sent to cloud.

## V working procedure:

We had implemented a design to prevent little children. The design consists of node MCU, DHT11 to detect surrounding temperature and humidity, LDR sensor for detecting surrounding light intensity, GPS module to send the location and buzzer to produce a sound.

The main component of our design is node MCU and is connected to the bread board and the power to node MCU is given by USB cable by using a system. Mainly to detect surrounding temperature and humidity there must be a sensor and we had used DHT11 sensor. The working of DHT11 is to continuously detect the surrounding temperature and humidity values.

And for detecting surrounding light intensity we are using an LDR sensor which has a resistor. When the light intensity is high resistor value becomes zero and vice versa

GPS (Global positioning system), it does not need any user to transmit the data it automatically tracks the location by trilateration principle. And another component is buzzer is activated.

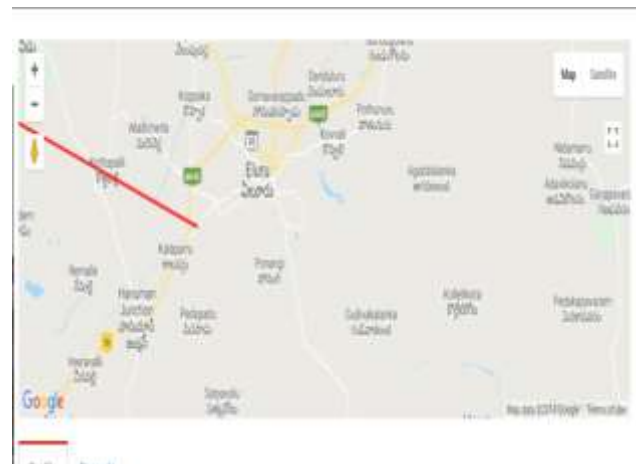
The whole design is implemented by writing a certain code in Arduino software, and the code is dumped in to node MCU by using USB cable, and the power is also given by that cable. Connections are made as shown in the circuit diagram.

And to check our device we increase a temperature near DHT11 sensor using a heated soldering rod and closing the LDR sensor completely to acquire 0% light intensity. The values are sent to node MCU and node MCU activates the buzzer and send a warning message to guardian along with values and gps location.

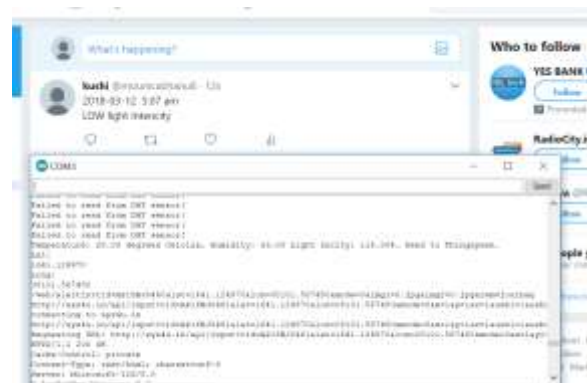
## Results:



Fig(c) : Thigspeak graph



Fig(d): GPS location



Fig(e): Fire detection values

### Explanation:

Fig(d) shows the GPS location in sys4u website .Fig(e) shows the warning message in twitter account and also the GPS latitude and longitude values of the current location.Fig(c) shows the graphs of temperature, humidity and light intensity in thingspeak app and these values are sent to cloud

### VI Applications:

- Women can also be protected.
- Environment details can also be aquired.
- Mentally disabled children can be guarded .

### Advantages:

- Preventive measures are implemented with a minimum amount of time.
- Human loss and property loss will be reduced.
- Information will reach at right time by using GPS module.

### VII Conclusion:

The child safety wearable device is capable of acting as smart IOT device. It provides parents with real time location, surrounding temperature, humidity, light intensity .The smart child safety wearable device can be enhanced much more in the future by using highly compact Arduino modules such as the Lilipad Arduino which can be sewed into fabrics. Also a more

power efficient model will have to be created which will be capable of holding the battery for a longer time.

### Future scope:

#### CAMERA MODULE:

For surveillance of the child's surroundings, to get clearer picture of the location, the wearable device can also contain a camera module incorporated in it. Mobile is provided with a snapshot option on clicking on that the surroundings snapshot is obtained to the mobile.

#### GEO FENCING:

As children has less knowledge they go to fewer places daily. By adding geo fencing parent get an alert to mobile if child went to any unknown place .

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