# A Literature Survey on IOT Based Safety Gadget for Child Safety Monitoring and Notification.

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## Abstract of the Project:

This paper is based on IOT (Internet of Things). As we know in present era everything is based on digital technology. Human being is going to connect each other by using mobile network .This paper proposes an SMS based solution to reduced parents insecurity and schools to track children's in real time.

## 1.1 Introduction

## 1.1.1 Background

"Nowadays, crimes always occur. This scenario not involves by adults only, but also happen to children. Parents concern more about serious cases such as missing children, abduction and rape.The crime also involve by school children have been reported in newspapers. Although theschool have guards that posted on school grounds 24 hours a day, that simply not enough to monitor the student. To overcome these problems the authorized need to provide additional security measure".

## 1.1.2 Problem Statement

More family's spent their time for work and social duties but since Children are gift of GOD they need care of family. The current situation of our country is not confortable for monitoring children in school. With the absence of child monitoring system it is hard to monitor the where about of children.

## 1.1.3 .Objective

Propose IoT Based Children Monitoring System in School in ETHIOPIA context.

## 1.2.Proposed System

I proposed new futures from the existing system if the student has no in school compound it send the location of student to school principle or class monitor teacher.The sensors I use GPS (NEO-6M-O-001) the sensor display value on the

text message. There are four status of children was displaying on text message. Four statuses are “Sleeping”, “Studying”, “Exercising”, and “Dangerous”.

If the data detected by NEO-6M-O-001 is change continuously more than 3 seconds, the status will change to “Exercising”. If the children don not exercise the status will be change to “Studying”. According to the GPS we can know the children rout from home to school.

If the children absent from school or out of school during class the status change to “Dangerous” we can track the children. When during Dangerous mode the tag send text message to their families. The three statuses are depending on speed. The NEO-6M-O-001 is measure speed by kilometer by second.


Figure 1 Block Diagram

## FIGURE 2 : ARDUINO UNO-R3

The Arduino Uno is a microcontroller board based on the ATmega328. It has 20 digital input/output pins, 14 digital input and output pins, 6 analog inputs, a 16 MHz resonator, a USB connection, a power jack, an in-circuit system programming (ICSP) header, and a reset button. The ATMEGA 328P has 32kB of flash memory for storing code.

## Figure 3: Arduino UNO R3

### A6 GSM/GPRS MODULE

The module works to add both GSM features (voice call or SMS) and GPRS features. The advantages of these modules are the VCC and TTL serial level that have 5V voltage level.Module to accomplish almost anything a normal cell phone can; SMS text messages make or receive phone calls, connecting to internet through GPRS, TCP/IP, and more. To top it off, the Module supports quad-band GSM/GPRS network.

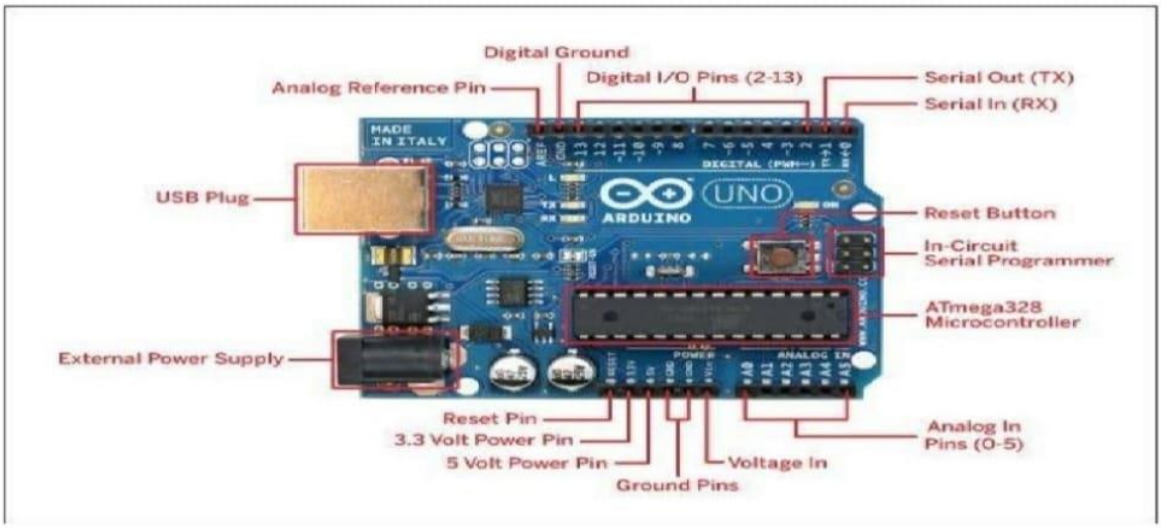


Figure 3: Arduino UNO R3

**FIGURE 2 BLOCK DIAGRAM**


**FIGURE 3 BLOCK DIAGRAM**

**FIGURE 4 : NEO-6M-0-001 GPS MODULE**

The NEO-6M GPS receiver module uses USART communication to communication with microcontroller or pc terminal. It receives information like longitude, latitude, altitude, UTC time etc.NEO-6M GPS module that can track up to 22 satellites and identifies locations anywhere in the world.

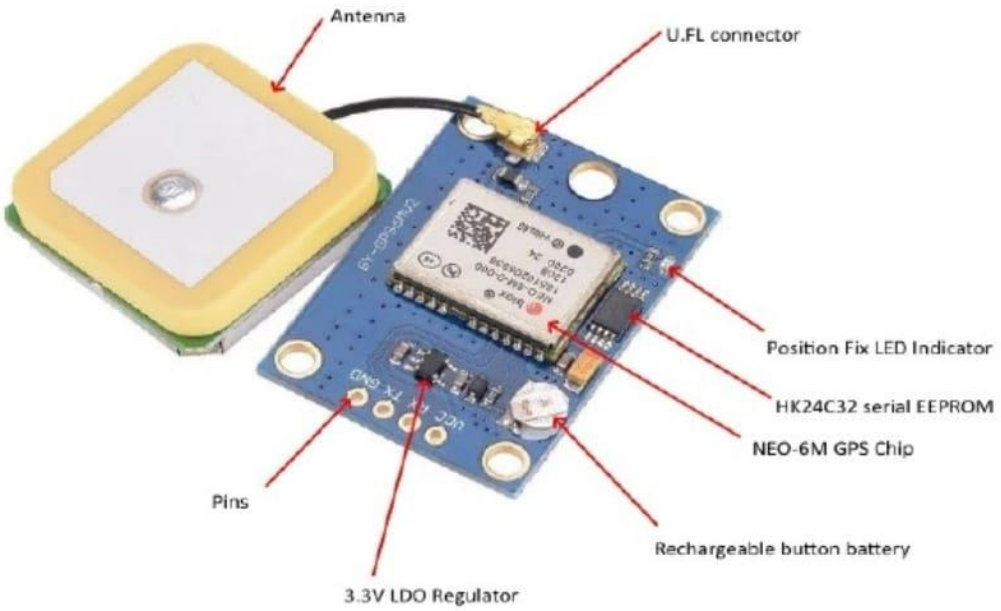


**Figure 5: NEO-6M-0-001**

**FIGURE 4 BLOCK DIAGRAM**

## COMMUNICATION TECHNOLOGIES:

To achieve communication abilities many technologies and standards have been proposed.Mobile-phone technologies (2G/3G/4G), Wi-Fi enabled Arduino like Wemos D1, Ethernet Shield, GSM Module.

## SYSTEM ANALYSIS & DESIGN :

### 1.3.1. Requirement Specification

### 1.3.1.1. Functional requirement

The system shall allow the user or family's to register phone number.

The system shall provide report for the ongoing day to day activity both for the schools and families.

The system should provide all the sensed data from each sensor send by text message.

### 1.3.2. Algorithms

Children monitoring System

Step 1: Start the process.

Step 2: Initialize power is supplied to microcontroller and sensors.

Step3: Check the speed and location of the children.

Step 4: Send all data gathered by text message.

Step 5: Display real time data that is sent to mobile phone.

Step 6: Check if the location will be different from set location.

Step 7: send text message.

Step 8: After the process completed, it moves to original state

Step 9: Stop the process.

## 1.4. RESULTS AND DISCUSSION

### 1.4.1. DISCUSSION

When the children during movement the NEO-6M-0-001 measure the speed by kilometer by second (KMPS) and it compare with threshold value. Depend on the measured value it conclude the status and send text message for family.It also detects the location and tracks the children. It 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.

### 1.4.2. Result

Some result from children monitoring system.


**Figure 5: Children status on school**


**Figure 6: Children Status out of School**

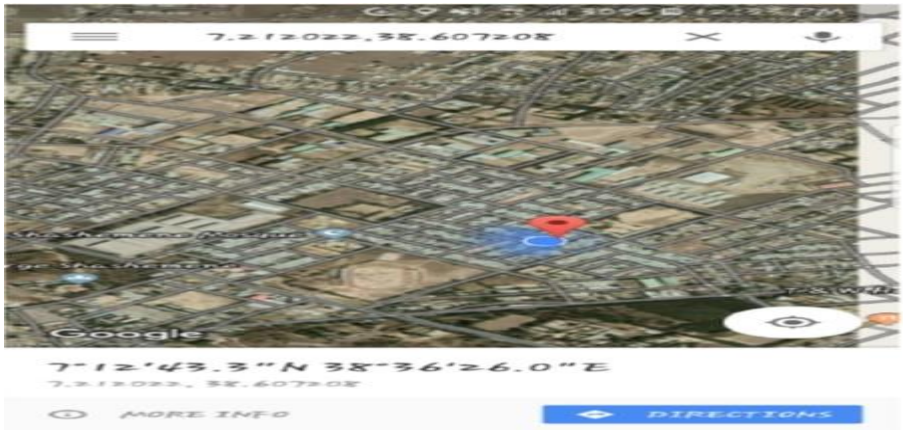


**Figure 7: Children Tracking on Google Map**