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An Intelligent Development on Child Safety Wearable Device

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Abstract: Nowadays due to increase in poverty and competition in the world the need for safety has become more and more important as people are very busy in earning money and fulfilling all their needs and the needs for their comfortability. In order to fulfill their needs people are ready to work day and night and in this busy life we forget to focus on the safety of our family members, our kids, elders and us. This less attention towards our safety and our loved ones has become an advantage to all the criminals. As a result we see all crimes like –human trafficking, kidnapping, rapes, acid attacks etc. It is not possible that only crime may happen it could be even a medical emergency which is also important. Keeping all this in mind and in order to safeguard our loved ones and even themselves we have come up with an idea using internet of things.

The goal here is to give every citizen a safe place to live without any fear, anxiety etc. And, make this world a better place to live. With no crime and happy living. Putting forward to the above idea we have used **STRONG LAZER BEAM** where if in case the victims relatives, friends are unable to reach or if the police is unable to reach then the victim can safeguard itself by this laser beam. **CAMERA** which is used to record the incident. **GPS** is used for location. **SECURITY LOCK** for security and shock purpose. **VOICE SENSOR** for sensing voice and for camera recording. **TEMPERATURE SENSOR** with pulse detection and heartbeat. **BATTERY** with its longer battery life so that even if we forget to charge it, it can last upto days.

Keywords - women, kids, strong laser beam, gps, location, voice sensor, temperature sensor, battery, safe, crimes.

I. INTRODUCTION

Due to increase in population in this world, there is automatic increase in poverty level, starving for food and need for shelter is also increasing day by day. Starving and the need for their comfortability has lead to competition and made man very busy in earning money, prestige, reputation etc. The priority for money has lead some people to do crime and some people take this advantage of their loved ones not focusing on them and do something which they are not suppose to do. It could be any crime or any medical emergency to hospital. To solve this problem we have invented this device where safety for women and kids have been kept first. We use laser beam, camera, gps, voice sensors, temperature sensor, security lock, long battery life. We have used camera to record the crime happened and the person doing the crime with date and time. We use laser beam because if in case the victims relatives, friends are unable to reach or if the police is unable to reach then the victim can safeguard itself by this. The gps is used to locate the address and send it immediately to the nearest police station and any relative or friend about 800m from the victim and this gps and location will be turned on when there is any fluctuation in the pulse of the victim and if the voice frequency ranges to one extent. Voice sensors are used to detect the frequency of the voice and record voice in the camera fixed in the device. Temperature sensor is used to detect the pulse and heartbeat of the victim to know whether the victim is in any danger or medical emergency. Battery here is used to charge the device and this battery life will last for 3-4 days. Security lock is a finger print where if any other finger is detected it gives a alarm with shock. Everything will be tracked by an mobile app which will be installed by the users relatives and police. And we have set the live location so that where ever the victim is its loved ones or the police will know.

II. LITERATURE SURVEY

A. *Child Safety Wearable Device* By Gopinadh Jonnadula, Bhanu Prasad Davu, Hari Kishore Kandula, Vinod Donepudi, Sivaiah Etukuri Febraury 2018[1] :

Describes the System Overview as an ATmega328p microcontroller controls the system architecture of the wearable device with an Arduino Uno boot-loader. The Arduino Uno collects the data from the different modules interfaced to it, such as the GPS module upon being triggered by the Arduino Uno by receiving SMS from GSM module. The GSM module is used as an interface to send the data received by the Arduino Uno via SMS to a mobile. The GSM module functions as a trigger for the Arduino Uno to request data from its various modules connected to it. If an SMS text with specified keyword is sent to request the current location or GPS coordinates is sent to the GSM module via the user's phone, then the GSM module triggers the Arduino Uno to request the current GPS coordinates

B. Child Safety Wearable Device By Rajkumar, D. Rajendra Prasad July 2018[2]

Says that The platform on which this project will be running on is the microcontroller board and the functions of sending and receiving SMS, calls and connecting to the internet which is provided by the microcontroller. GSM shield using the GSM network. Also, additional modules employed which will provide the current location of the child to the parents via SMS. The second measure added is led Light indicator device.

C. A Research On Child Safety Wearable devices By P. Nandhini, K. Moorthi October 2018[3]

Proposed that This project describes about safe and secured electronic system for women which comprises of an Arduino controller and sensors such as temperature LM35, flex sensor, pulse rate sensor. A buzzer, LCD, GSM and GPS are used in this project. The device is mainly built to save a child from harassments. We are placing the touch sensor in the bad touching places of the girl child. If any touches on the touch sensor is detected, the device senses the body parameters like heartbeat rate, change in temperature, the movement of victim by flex sensor. When the sensor crosses the threshold limit the device gets activated and traces the location of the victim using the GPS module. By using the GSM module, the victim's location is sent to the registered contact number. A hidden camera is also fixed along with the child dress, when the device gets activated, the camera starts working and it transmits the live scenario to the registered contacts, so that they can be able to see what's happening there.

D. Child Safety Wearable Devices With IOT By Ms. S. Sorna valli , Mrs. A. Jasmine Sugil November 2018[4]

The sensor using the different types of application: position, presence, fluid level, speed, safety etc., and then using for temperature sensor. This work for physically analysis of body temperature, happy, pressure etc., this not only using identity child location, analysis for child health level and temperature, happy, blood pressure normal, energy level of child. The sensor every time analysis of child position and health level. The device has the characteristics of high reliable, short response time and high accuracy, and can meet the requirement to ensure children's safety. The application was implemented in PHP.

E. Child Safety Wearable Device By V.Lavanya , C. Meenambigai, M. Suriyaa , S. Kavya March 2019[5]

The child safety wearable device is capable of acting as a smart IoT device. It provides parents with the real-time location, surrounding temperature, UV radiation index and SOS light along with Distress alarm buzzer for their child's surroundings and the ability to locate their child or alert bystanders in acting to rescue or comfort the child. The smart child safety wearable can be enhanced much more in the future by using highly compact Arduino modules such as the LilyPad, 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.

F. Smart IOT Device for Child Safety And Tracking By M Nandini Priyanka, S Murugan, K N H Srinivas, T D S Sarveswararao, E Kusuma Kumari June 2019[6]

The counter time should be checked for time interval of 30minutes. For every 30minutes except serial camera, the data from GPS, temperature, touch, pulse rate data is pushed into the cloud. The monitoring parameters are displayed on webpage. The counter is reset to restart the timer. So as to post the data into the cloud for every 30minutes. The sensors data is continuously read by the controller. When the value of temperature read from the sensor crosses the threshold1, notification messages are sent. The threshold value of the temperature is considered here is 38°C. Similarly, when the touch sensor value is croccess threshold2, notification messages are sent. Threshold of the touch sensor is considered here is 100. The Pulse rate interval is analog value from the sensor, it is converted into the beats per minute (BPM) by formulae.

III. EXISTING SYSTEM

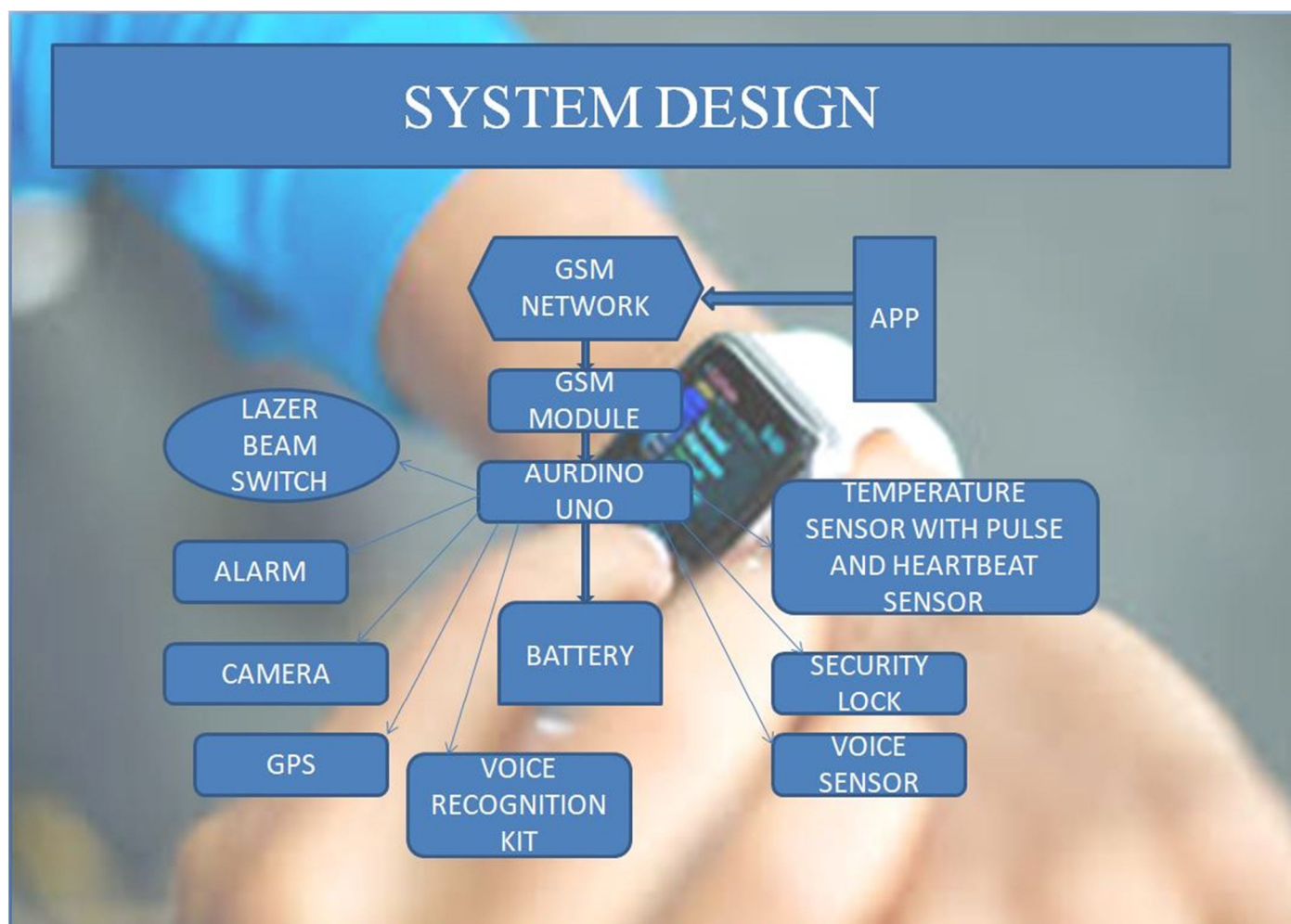
The results of the existing system referred by the above papers is that every author's intention is to safeguard every individual let it be women, child or men to make them safe living. The device will continuously monitor the victim. The data can be downloaded and accessed any time .However the papers referred are promising-

- A. GPS to detect location.
- B. Camera to detect every incident happened to the victim.
- C. Alarm to detect danger.
- D. Pulse rate with temperature sensor to detect the temperature and pulse of the victim.
- E. Heartbeat to detect heart beat of the victim .

IV. PROPOSED SYSTEM

Knowing all the crimes in the world and keeping safety in mind we have introduced a few things to our existing system. We have made it so strong, portable, less weight to carry and with all defect proof. That is it could be damaged by sun's harmful radiations so we have made it sun proof. It could even be damaged by water when in water so its made waterproof. It has high pixel camera where voice recording and vedio recording can be done with date and time. It has a button for lazer beam which when pressed will throw a blazer beam on the person targeted by the victim so that it could safeguard itself till any relative or police reach the victim. The location here will be the live location so that where ever the victim is the police or the relative will get to know. There is a pulse sensor and a heart beat sensor used to detect the victims danger. These all are connected with a android app. It has a security lock where fingerprints other than the recorded finger prints are sensed then the person touching it can get a shock with an alarm which is louder than a speaker. The battery can last minimum of 3-4 days. And everything is tracked by an mobile app which will be installed by the users family and relatives and the police.

V. BLOCK DIAGRAM



A. Lazer Beam

Many types of laser weapons can cause temporary or permanent vision loss when aimed at the eyes. Improperly used laser devices are potentially dangerous. Effects can range from mild skin burns to irreversible injury to the skin and eye. The maximum absorption of laser energy onto the retina occurs in the range from 400 - 550 nm. Argon and YAG lasers operate in this range, making them the most hazardous lasers with respect to eye injuries. Wavelengths of less than 550 nm can cause a photochemical injury similar to sunburn. Therefore we use wavelengths less than 550nm so that the damage caused by the victim to the criminal will be less and be cured soon.

B. Temperature Sensor

We use temperature sensor with pulse rate sensor and heart beat sensor where the temperature sensor can detect the temperature of the body with pulse sensor where any increase in pulse rate it can alarm for danger and heart beat of every person is 60-100 per minute if this increases more than 100 it alarms for danger.

C. GPS

We use gps to track the location of the victim in danger and here we have used a live location gps tracker where the nearby relative and police will have the track of the victims location where ever it moves.

D. Security Lock

The lock here used is a finger print lock where if any other person other than the victim opens it ,it gives a shock with alarm and the alarm here used will have a loud range of noise which could be heard even in any crowd place.

E. Camera

It is used to record the incident happened by the victim and store it.

F. GPS

It is used to track live location of the victim where ever he/she moves.

G. Alarm

When the victims voice increases after a certain frequency the alarm activates and the gps and camera opens.

VI. DRAWBACKS

- A. The beam could be more strong with more range like 50m.
- B. The shock could be more safe for the person who wear it.
- C. We could detect a persons danger by its eyes or any other pulse.
- D. Help detect if its crime or an medical emergency from pulse rate or heart beats or from camera so that the message to will go to police if in case of crime and if emergency go to hospital.

VII. CONCLUSION

- A. This paper gives an innovative idea of using lazer beam in our own self defence
- B. The alarm,the pulse rate and the heart beat ,is used to detect if the victim is in danger or any medical emergency.
- C. This invention will help every women to go out safe where ever and whatever time she wants without any danger to her life.
- D. And make every citizen safe with no crimes and have a better society and safety.

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