MAT JOURNALS

Women Safety Device Based on IOT

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Abstract

Now, recent trends are opening up to the era of Internet of Things (IoT), which is the communication between Internet and the devices. This is one of the rising advancements, from the point of view of shrewd advances, which is dependably been normal by the approaching age. This system centers on a security framework that is structured exclusively to effectively provide security to ladies with the goal that they never feel powerless while confronting such social difficulties. The framework comprises of different modules, for example, Indication, Emergency, Medic care, Dietary. All these modules have different function which will help women to be felt safe and secure in our country. In case of Emergency, alert will send to the contacts added in the list through mobile application with the GPS location. After every two minutes the location will send to the respective contacts and the nearby police station. And for pregnancy women, if they have any false pain during the time of pregnancy the alert will send to their contacts, doctor and an ambulance. Also the dietary chart is available for pregnancy women so that they can take care of their health. In dietary chart the details of food that is what food they have to take and in what time is displayed as notification. If user has taken that food displayed as the notification, the user can tick the checkbox shown in the mobile. At last the report of their daily details of food is display at the day end. So this band will be very useful for women to be safe and secure.

Keywords: Security system, GPS location, Pregnancy women, Women safety, Internet of things.

INTRODUCTION

The indication button used here is to send a message to the user's family, friends indicating that the user is safe with the location.

If the band is not with the user the object sensor will sense and will send 3alerts to the mobile as text.

Moreover, if all the 3alerts are not responded by the user then it will go to indication button which will send alert message to the user's family and friends that they are in some emergency.

EMERGENCY

If the women knows that they are in real danger or in emergency situation they should press the emergency button which will automatically send an emergency message based on the GPS location to the nearby police station so that the police can rescue the victim. The nearest location can be tracked using the GPS module.

The crisis catch is an electronic gadget intended to help with alarming someone in crisis circumstances where a danger to people or property exists.
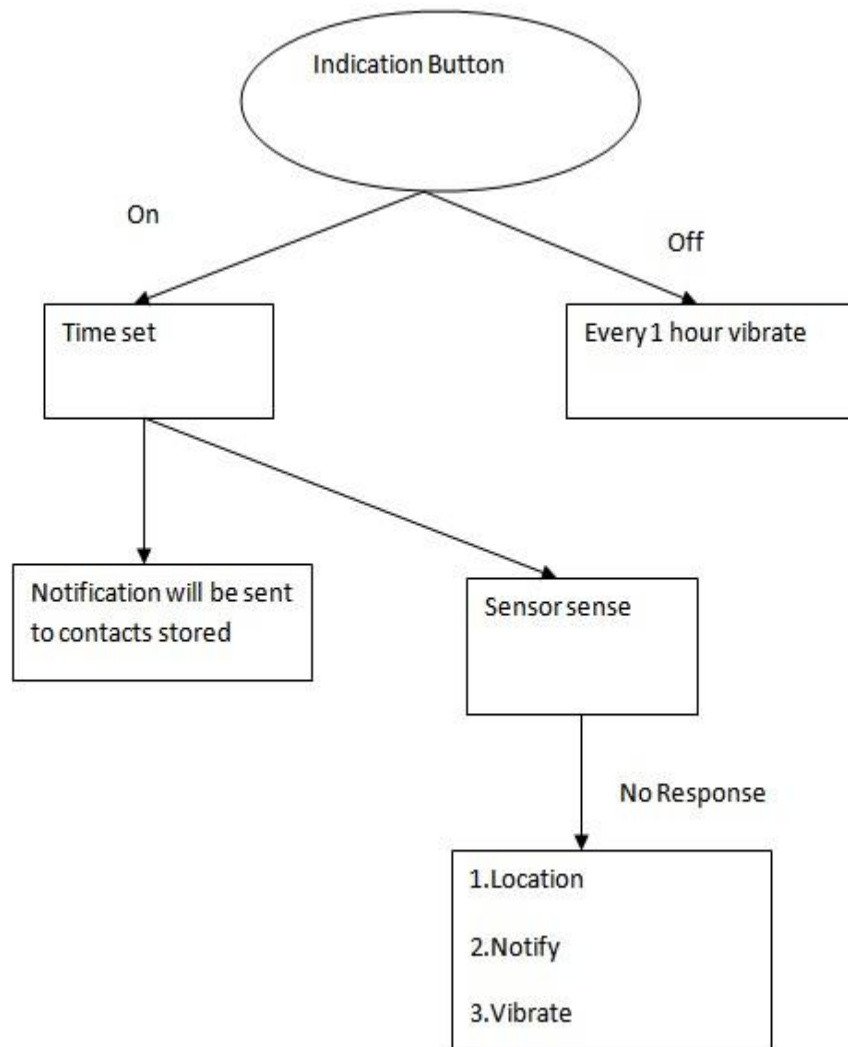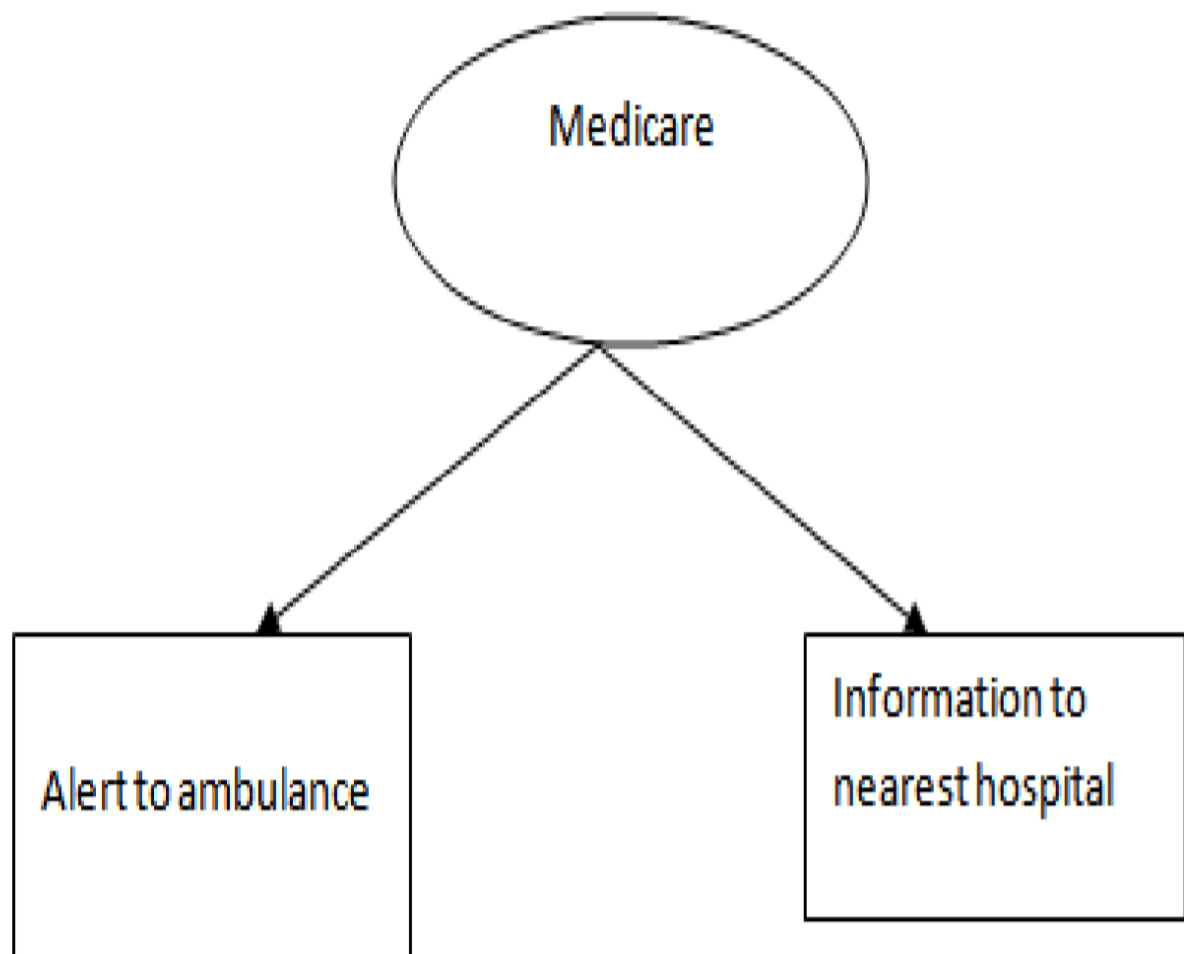
Figure 1: *Indication Flowchart Diagram.*

Figure 2: *Emergency Button*

MEDIC CARE

This is been use by the pregnant women's during their pain. Say for instance they are in home alone, in case they have pain now a day's most of the deliveries are caesareans which cause many deaths by careless and unknown of time duration. Before pregnancy all the women have a false pain we can't predict. In addition to this, the senior citizen ship face many problems like high pressure, unknown of time, false pain, blood clot etc., which leads to death. Our product will ensure women's safety. By clicking this button an indication will be sent to the nearest hospitals and private ambulance.


Figure 3: Medic care Flowchart Diagram.

DIETARY

In the versatile application there is a module for the pregnant ladies diet month savvy. They additionally get sign for consistently .in the event that on the off chance that they overlook anything they will get alert. Also, at the day end they will get a report by ascertaining their heart beat, weight and their eating routine on that day. Notwithstanding this they additionally get month astute report so they can have a correlation from a month ago.
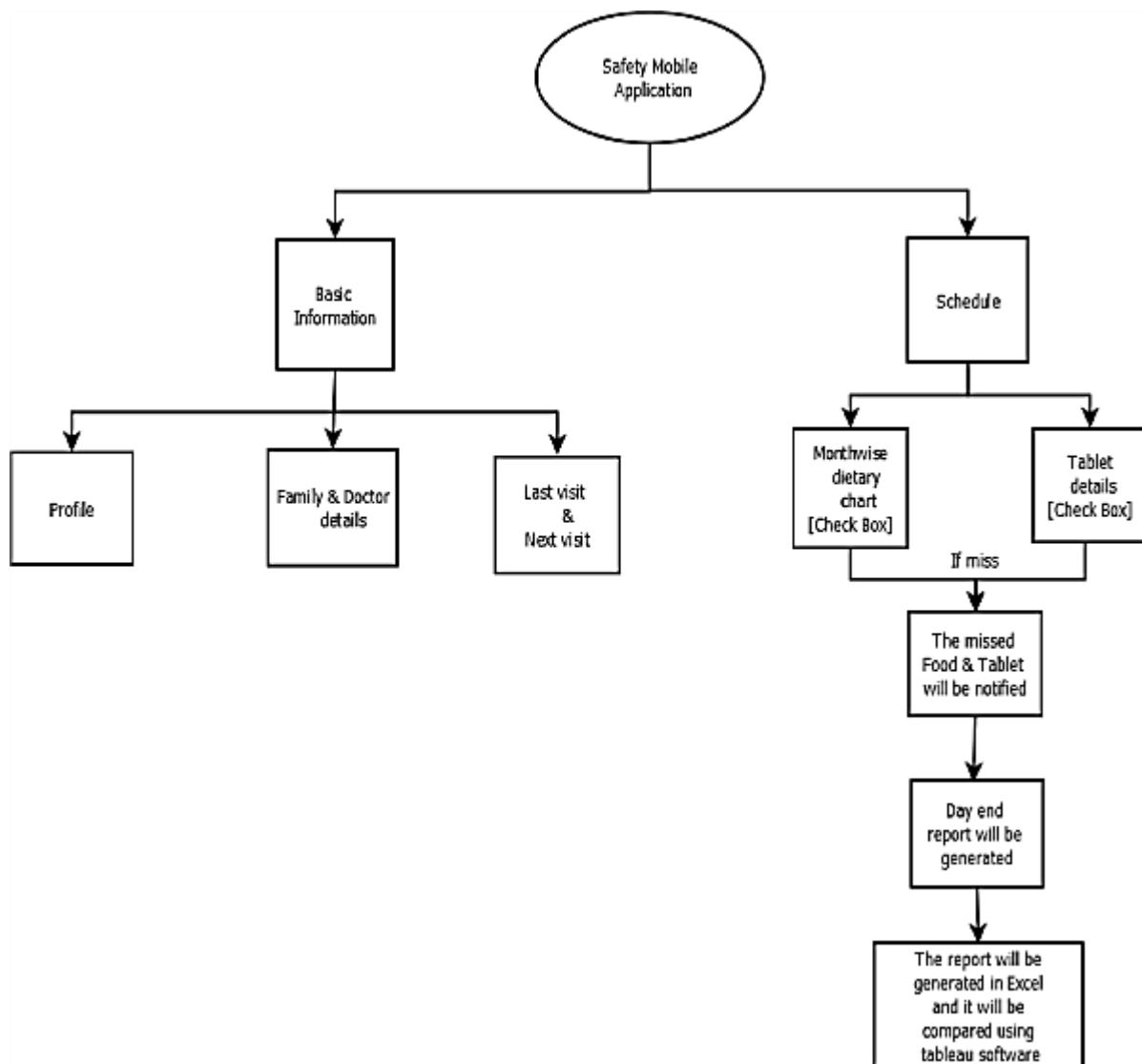
Figure 4: Dietary Flowchart Diagram

SENSOR

A sensor is an electronic part, module, or subsystem whose object is to distinguish occasions or changes in its condition and send the data to different gadgets, as often as possible a PC processor. A sensor is constantly utilized with different gadgets, regardless of whether as straightforward as a light or as intricate as a PC. In this three sensors were utilized, they are the followings

- Object Sensor
- Pressure Detecting Sensor
- Heart Beat Sensor

OBJECT SENSOR

The object sensor tracks whether the safety band is on the user's hand. To identify the right user of this band the band is connected with the safety mobile application. In case, if the band is not with the user then it will send 3 alert message to the user mobile. Moreover, if the user response to the message the band will be idle. If the user does not response to the alert it direct connects to indication button and do indication process automatically. Moreover, the parents canproceed the emergency process. Object detection is a PC innovation identified with PC vision and picture handling that bargains with distinguishing cases of semantic objects of a specific class, (for example, people, structures, or vehicles) in computerized pictures and recordings. This sensor is similar to human's visionary detects, which

can be utilized to identify hindrances and it is one of the regular applications progressively.

The objective of item identification is to distinguish all occasions of articles from a referred to class, for example, individuals, vehicles or faces in a picture. Commonly just few occurrences of the item are available in the picture, yet there are a substantial number of conceivable areas and scales at which they can happen and that need to some way or another be investigated. Item recognition frameworks build a model for an article class from a lot of preparing precedents. On account of a fixed unbending item just a single precedent might be required, however more by and large various preparing models are important to catch certain parts of class inconstancy. The reasons... many, however by and large they can learn highlights (typically much superior to anything hand-made ones HOG, SIFT and so on.) with area and slight change invariance (in light of the convolutions and the pooling), which settles on them an exceptionally alluring decision.

PRESSURE DETECTING SENSOR
A pressure sensor, as the name suggests, is a gadget that faculties and measures weight (as a rule of gases or fluids). The weight sensor in electronic circuits is as a coordinated circuit that goes about as a transducer, that is, it repeats (as an electrical flag) the flag it gets as an element of forced weight.

Blood pressure measurement is divided into systolic and diastolic. Systolic blood pressure is the pressure during the contraction of the heart. Diastolic blood pressure is the pressure during the relaxation phase. Blood pressure is measured in mmHg (millimeters of mercury), a unit of pressure. It has been shown to rise during aroused states due to the activity of the Sympathetic system (Bernardi et al. 2000). Sorvoja (2006)

provides a review of practices on non-invasive blood pressure measurement and gives emphasis to three techniques: Tonometry, Pulse Transit Time (PTT) and Volume Clamp. Tonometry measures blood pressure by applying external pressure on the skin above the artery. As the artery contracts and expands due to the passage of the blood, the sensor will measure the pressure applied on the skin and give a reading of blood pressure Autonometric sensor can be easily integrated into a wrist watch. Essentially, if the pulse is higher, the blood sets aside less opportunity to engender into the supply routes. This strategy can utilize PPG to gauge the adjustments in blood volume in 2 places, ordinarily the wrist and fingertip. In a pressure reaction, the heart is one of the principal organs to respond, with an expansion in the bpm controlled by a withdrawal of Parasympathetic impact and expanded impact of the Sympathetic framework. To best time to do it is in the first part of the day, soon after awakening from a decent night of rest.

APPLICATIONS OF PRESSURE DETECTING SENSOR
- Pressure sensing
- Altitude sensing
- Flow sensing
- Level/depth sensing
- Leak testing
- Touch screen devices

HEART BEAT SENSOR
A person's heartbeat is the sound of the valves in his/her's heart contracting or expanding as they force blood from one region to another. The number of times the heart beats per minute (BPM). Is the heart beat rate and the beat of the heart that can be feel in any course that lies near the skin is the beat. Heart beat can be checked physically by checking one"s heartbeats at two areas - wrist (the spiral heartbeat) and the neck (carotid heartbeat). The strategy is to put the two fingers (record and center

finger) on the wrist (or neck underneath the windpipe) and tally the quantity of heartbeats for 30 seconds and afterward increasing that number by 2 to get the heart beat rate. Anyway weight ought to be connected least and furthermore fingers ought to be climbed and down till the beat is felt. By utilizing a sensor heart beat can be estimated dependent on optical power variety as light is dispersed or consumed amid its way through the blood as the heart beat changes. The heart beat sensor depends on the guideline of photograph phlethysmography. It gauges the adjustment in volume of blood through any organ of the body which causes an adjustment in the light power through that organ (a vascular area). If there should arise an occurrence of utilizations where heart beat rate is to be checked, the planning of the beats is increasingly essential. The stream of blood volume is chosen by the rate of heart beats and since light is consumed by blood, the flag beats are identical to the heart beat heartbeats.

EXISTING SYSTEM
There is already a BAND which consists of Arduino Board, GSM/GPS modules, screaming alarm and pressure sensors. When the threshold of the heart beat sensor crosses, the device will get activated automatically. Promptly the area of the injured individual will be followed the assistance of GPS and crisis messages will be sent to three contacts and one to police control room at regular intervals with refreshed area. The shouting caution unit will be enacted and will convey alarms to get out for help. The framework is additionally able to create an electric stun to hurt the assailant which may assist the unfortunate casualty with escaping.

PROPOSED SYSTEM
To overcome all these issues we are glad to introduce our product called SAFETY BAND. This band looks like an ordinary band with extra-ordinary features of emergency alert, ease notify, location

tracker, etc., At first connecting the band with our mobile via Bluetooth, so there is a connectivity between the band and our mobile , so they can get notification to their mobile in any emergency situation and about the dietary process. They can also add some of their contacts in their mobile to get an alert at any emergency situation.

And also they can add their doctor's mobile number to get an alert in the case of pregnancy pain. The dietary process of the pregnant women is also included with this. This will be helpful to maintain their dietary chart during pregnancy. Every day they get notification about what food have to take at that particular time in a day. And they have to make the tick if they had taken their food which is given in notification and they should not make the tick if they had not taken their food. Moreover, at the day end they will get a report by calculating their heart beat, pressure and their diet on that day. In addition to this they also get month wise report so that they can have a comparison from last month.

In this three sensors were used they are object sensor, heartbeat sensor, pressure detecting sensor. The object sensor is used to find the exact location of the user at the emergency situation, that location was detected by the object sensor and that location is send to their contacts in the case of emergency. The heartbeat sensor is mainly used to find their heartbeat rate per minute and the beat of the heart can be felt in an artery that lies close to the skin are the pulse. This measures the change in volume of blood through any organ of the body which causes a change in the light intensity through that organ. In case of applications heart pulse rate is to be monitored. A pressure sensor is a device that senses pressure of the human beings. Having a high blood pressure, also called hypertension, that is not under control can result in heart problems, stroke, and other

medical conditions. Normal blood pressure is a systolic weight of under 120 millimeters of mercury (mm Hg) and a diastolic weight of under 80 mm Hg, or 120/80 mm Hg, as indicated by the American Heart Association (AHA). When there is a change in the blood pressure or the increasing the level of their pressure, the notification will sent to the doctor. In case the band was lost, the user can deactivate the band through their mobile.so no one can use the band illegally. . So, this SAFETY BAND is an innovative idea for women security which can be used like ordinary band and it is very easy to operate at the time of danger.

SYSTEM SPECIFICATION
HARDWARE CONFIGURATION
The Hardware configurations required to run the project are,
Processor- Intel Quark X 1000 32 bit

Speed - 256 MB Cache 3.0GHz
RAM- 400 MHz -DDR3
Storage - Flash Memory 8M, EEPROM 8 kb, Micro SD card slot up to 32 GB.
Power - 15 W.

SOFTWARE CONFIGURATION
The Software components and configurations than are required to run are,
Operating System - Linux (Yocto)
Programming Language - Embedded c
Software used - Arduino
INTEL Galileo Gen 2

SOFTWARE DESCRIPTION
Intel Galileo and Intel Galileo Gen 2 boards, which are compatible with the Arduino headers and reference APIs. Intel Galileo boards are open source and open hardware. The Intel Quark X1000 SoC was preserved on Intel Galileo Gen 2 as the memory's capacity.
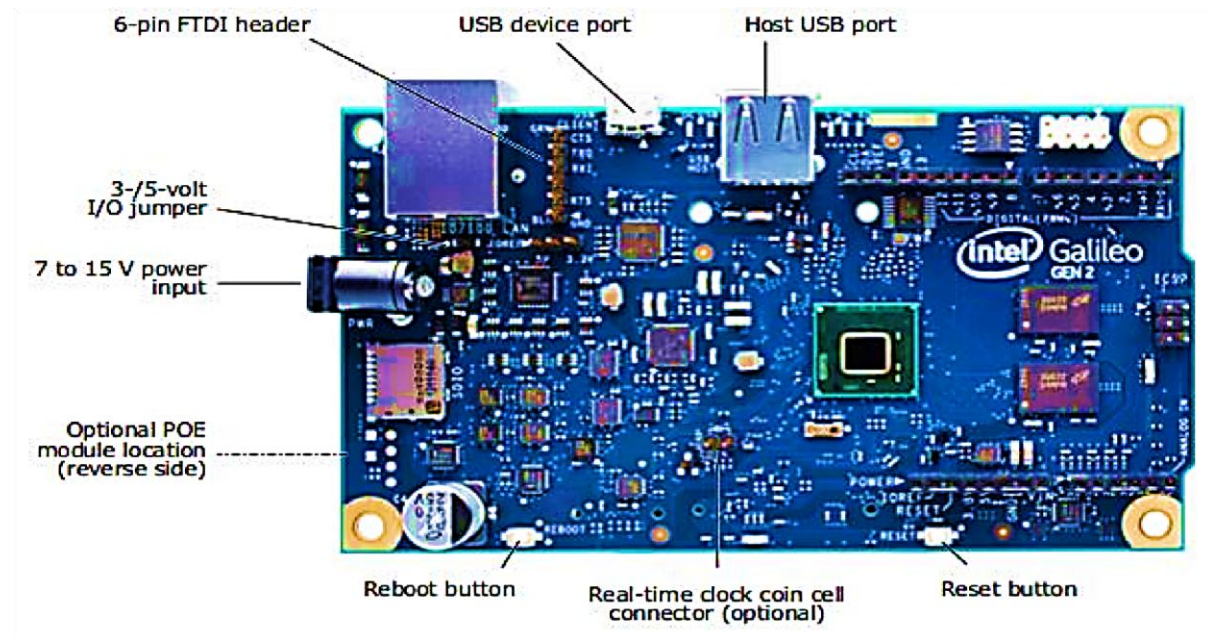
Figure 5: Intel Galileo Gen 2

ADVANTAGES
- All women will be safe
- No things will happen against women
- Low cost
- It can be used from any place.
- Women can be independent in their life
- Heart beat value detecting

CONCLUSION
Women face several problems in the society, at the time of danger they can't take their mobile and call the police or to someone. So, this SAFETY BAND is an innovative idea for women security which can be used like ordinary band and it is very easy to operate at the time of danger.

At present many of the girls and women having more health issues that are arising. They are not taking proper intake of health foods this leads to cause problem during their pregnancy time by using this womb band we can reduce many issues and also such features are added in the womb band for make the pregnant lady in the comfort zone.

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