Prevention Of Heart Attack And Blood Oxygen Monitoring System

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Abstract— This project deals with the disorders of human body such as heart attack and gives us the solution ,to identify,regulate and act as a first aid kit under critical situations.this system comprises of the heartbeat sensor which helps us to monitor and compare PH,blood oxygen and pressure levels such as systolic and diastolic pressures of the human body which are developed in the heart valves during its normal and abnormal conditions.if any deviations in the pulse rates are identified by the system then the deviation is coded on to the microcontroller and an alarm sound along with the location information is being sent to the nearby hospital or to the medical control sector with the help of GSM and GPS systems.Along with this a small acceptable vibration is also triggered with the help of vibrator,on the person under crisis as a first aid to protect the person from dangerous situation and to resolve the issue temporarily,until the person of interest is shifted for proper medication.

Index Terms— GSM: Global system for mobile communication, GPS: Global positioning system, BP: Blood Pressure,HB: Heartbeat.

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1 INTRODUCTION

THERE   are already many devices which are found in the market to cure heart blocks and analysis of heart beat rate, many companies provide modules to sense the heart beat by fixing the sensor in the watch and finger then other lead points. This are under the basic of the ECG machine many new technology was developed.

For the treatment, many pace makers and defibrillators are used. In the medical line which is used to save the person from heart attack.

Here in out project which deals with the heart beat sensor that sense the PH level, blood oxygen level and pressure level, through finger or wrist and then vibration is given as first aid to the abnormal heart, the sensor sense normal value of the heart beat and comparison will be done by the controllers also the heart rhythm will be checked for every second, when the rhythm of the heart is changed or differ from the normal value on comparison then the controller start work with the output unit which is already interface with it.

In output there will be a buzzer, LED, vibrator, GPS and GSM unit. The buzzer and LED is for intimations, that helps people to know the problem, also there will be many lead points in our body which is connected with the heart. The vibrator is placed on those leads and vibration is passed on through the veins and help to clear the blood block temporarily and there will be a GPS and GSM unit in the interface with controller. The controller is preloaded with two numbers. One is in hospital control room and the other with the nominee of the person whom the person wants to give the intimation through message. Along with this GPS help to sense the current location of the person which is sent through the message using GSM.

Keywords: GSM: Global System for Mobile Communication; GPS: Global Positioning System; BP: Blood Pressure; HB:

Heart beat; LED: Light Emitting Diode.

A) Technical Background:

In the previous modules there was a heart beat sensor attached with the communication modules, which costs more. Here we are using normal low cost components that give high efficiency and more stability.

There was a issue that went on all over the world that, "Mobile phone vibration and radiation can affect the heart so please avoid keeping mobile near the heart". But according to the Newton's third law,"Every action has its equal and opposite reaction". The idea of this universal law is used in our project. While we place the mobile near the heart, the vibrations from it can stop the heart beat or cause heart diseases like blocks and other damages. But in our kit we reverse this process by giving the vibration to the abnormal heart to change the abnormality of normal heart beat.

B. Proposed Solutions:

There are more heart beat sensors and communication models that are available in the market itself. Also many companies are doing their own watch heart beat sensors with Bluetooth, GPS and GSM units, also there are pace makers available in the markets to cure heart blocks. But it's all available in separate modules in the market.

These devices are not in complete form whose function is so individual that some devices sense the heart beat and other device that are separately done the communication units not interface each other also the first aid unit is not place with any of the device it needs the big transferring process not compact and portable apart from all the cost wise is so high normal farmer or below poverty person and middle class fam-

ily cannot think of that process.

C. Organization of the Report:

There will be a million of person die only of the heart attack in this world. Also there is no age limit for this man killing disease and also the medicines are cost wise too high. Normal person cannot use and it is too complex to handle.

II. PROPOSED SOLUTION

Here the newly made is that we interface all the communication device, sensor and vibrators together on the single monitor. So it can track the location, send intimations, sense the heart beat and compare with the normal and abnormal level of the heart rate for every second. While a person is having any problem there will be immediate message that is given to near hospital control rooms and the legal nominee whom the person can be nominated also every individual kit we providing the user identification number which consists of the personal details of the person which can be easily tracked out and send the helpline team to the current place of the person.

BLOCK DIAGRAM:
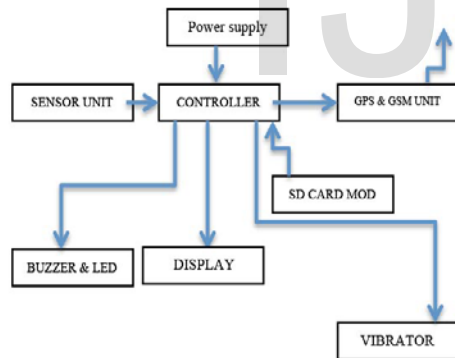
III. IMPLEMENTATION

COMPONENTS:
1. AURDINO
2. LM 384
3. MAX 232
4. L2930

Power Supply: We are using the 12V and 5Amp power supply for the kit. We can use the solar battery or other renewable source for the output power.

Sensor Unit: Heart beat sensor is used to sense the heart beat

rate analog value and it is transferred to digital value and given to the controller so that it can easily access. The transducer is used for conversion and Op-Amp is used for amplification of signal. Here we also use the filter for avoiding additional noise.

Control Unit: This is the major part that is helpful to control the full unit. All timing and condition is programmed into the kit and it can easily interface with output units. There will be sensor input given to controller. Then the output is given to the GSM, GPS unit, vibrator, display, buzzer and LED.

GSM &GPS Unit: This unit helps us to find the location of the person like a tracking device from the kit with the help of GPS unit. The GSM unit helps to transfer the message to the two numbers 1) nominee 2) hospital control room which are easy to identify by the helpline team and family.

Vibration Unit: This unit helps to pass vibration to human heart and reduce the block in the heart. The normal fat or blood clot to be removed from the human body needs 1200 rpm of motor power. Fat reducing devices are with the same rpm which are available in the market, but for safety here we are placing normal vibrator used in mobile phones.

Display Unit: There needs some display to know the status. So normal 16*2 display is placed. Its shows the numerical value of the heart beat rate and GPS location values which can easily be identified by the human visible eyes.

Buzzer and LED: Sound and light are the main indications that everyone can easily sense and identify. So here we have the sound of buzzer and LED light for indication.

SD card mod: It is used for additional information storage of controller. Some details and medical history of the person are added easily to the controller during communication. It helps in all places in hospitals incase of emergency.
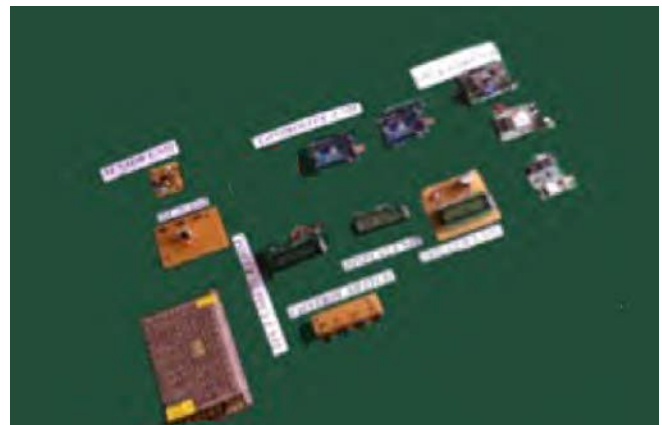
KIT HARDWARE DESIGN

Switches: Additional switches are connected to the kit and the interface units to avoid the damages and also used for emergency purpose.

B. Software Implementation:

In this kit we use controller program. In addition software is built for the hospital purpose called "TI HOSPITAL CONTROLLER". It is used to check the person's details in hospital using their personal ID number which is provided for all individual persons.

IV. RESULTS

The output is workedout by checking of normal person heart beat sense visible in the DSO (Digital Storage Oscilloscope), for abnormal heart rate. The additional trigger is triggered out to the controller and its vibrator output is checked out in DSO and then GSM and GPS output is checked as message at receiver side and hospital control room.

Heart beat sensor:
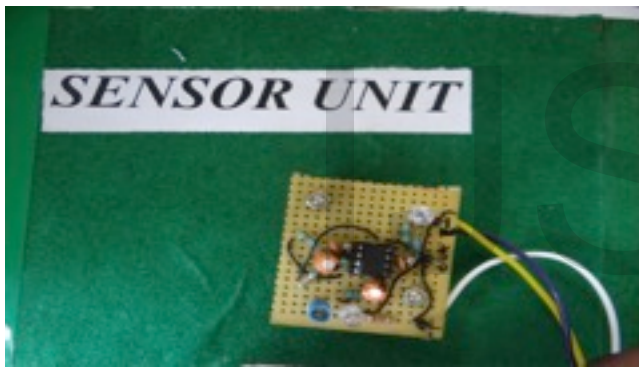
DSO out of HB:

Trigger Unit:
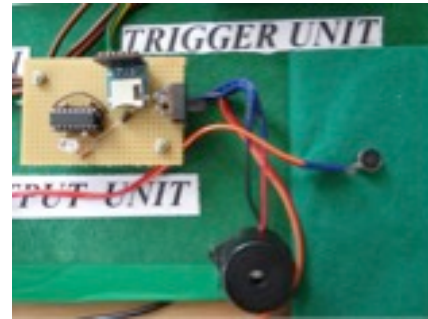
DSO output of trigger unit

Vibrator
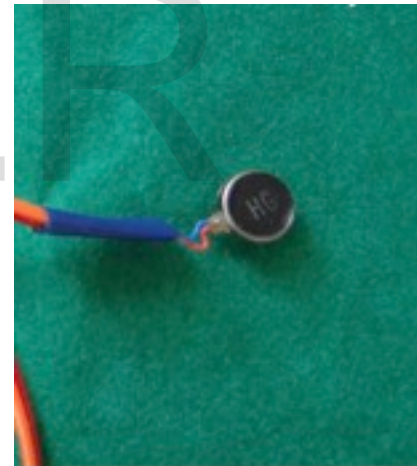
DSO out of Vibrator
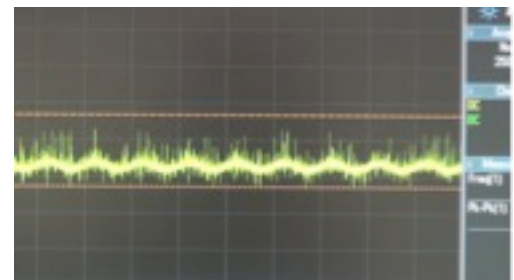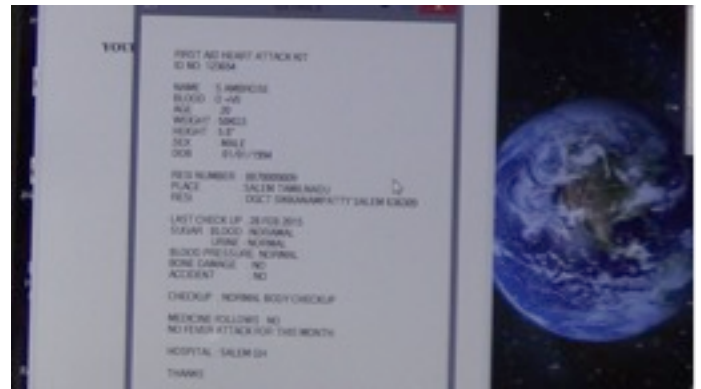
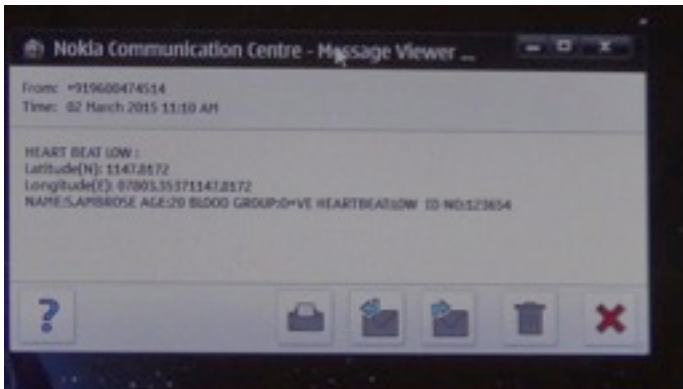**GPS and GSM output**

GPSLocationTracker:

Software output

V. CONCLUSION

The proposed system helps us to diagnose the heart attack as well as provide us a provision to trigger a vibration that compensates the abnormal pressure levels until the person is provided a proper medication. Hence forth this system is comparatively reliable and cost wise it is lesser than conventional pacemakers.

VI . ACKNOWLEDGMENT

VII. REFERENCES

1. *http://ieeexplore.ieee.org/xpl/login.jsp?tp=&arn um- ber=6346611&url=http%3A%2F%2Fieeexplore.ie ee.org%2Fxpls%2Fabs_all.jsp%3Farnumber%3 D6346611*

2. *http://technav.ieee.org/tag/5994/fetal-heart-rate*

3. *http://www.heart.org/HEARTORG/Conditions/Ar rhyth- mia/PreventionTreatmentofArrhythmia/Preventi on-Treatment-of- Arrhythmia_UCM_002026_Article.jsp*

4. *http://ieeexplore.ieee.org/xpl/login.jsp?tp=&arn um- ber=6945112&url=http%3A%2F%2Fieeexplore.ie ee.org%2Fxpls%2Fabs_all.jsp%3Farnumber%3 D6945112*

5. *http://ieeexplore.ieee.org/xpl/login.jsp?tp=&arn um- ber=4109133&url=http%3A%2F%2Fieeexplore.i eee.org%2Fxpls%2Fabs_all.jsp%3Farnumber% 3D4109133*

6. *http://www.nlm.nih.gov/medlineplus/ency/articl e/000063.htm*

7. *http://www.slideshare.net/tilottama_deore/2013- ieee-human-health-monitoring-mobile-phone- application-by-using-the-wireless-nanosensor- based-embedded-system*

8. www.youtube.com/**watch**?v=y-rEI4bezWc

9. *https://opus.lib.uts.edu.au/research/bitstream/h an- dle/10453/2740/2006005666.pdf.txt?sequence=2*