

A USER-FRIENDLY DEVICE FOR ELDERLY PEOPLE

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Abstract - One of the largest decisions a family may should make is to work out the way to look after the elderly people (grandparents or parents or relatives). So, we've got designed a user-friendly device for the elderly people. During this project, A GPS based tracking system is proposed which helps within the tracking of live location of the elderly people and is notified by Short message Service (SMS) via GSM. The Light Dependent Resistor (LDR) is installed to supply Light assistance supported the atmospheric intensity level. The 8-Channel voice controller will help in remaining all their necessary activities like medical appointments, intake of medicines, food and several other occasions. The Heartbeat Sensor is employed to watch the heart beat rate of the person and send notification via sms when it gets deviated from the fixed range. All the above mentioned functions are controlled by the microcontroller, Arduino UNO.

Key Words: GSM, GPS, Heart beat Sensor, LED, Arduino UNO, 8-Channel Voice Control Unit, Location Tracking, Remainder

1. INTRODUCTION

One of the most important decisions a family may need to make is to see the way to look after elders when those elders aren't any longer able to live on their own. Families resolve this complex and emotionally charged issue in a very sort of ways. Some families find ways to produce elders with sufficient assistance such they're ready to safely remain in their own homes. Other families move their elders in with them so on personally provide care. Still other families find that placing their elder into a care facility is that the best solution for all involved.

Finding appropriate and affordable elder care and assistance is a challenge one. Determining exactly what variety of care will best fit elder's needs could be a time consuming process that always requires consultation with medical and eldercare experts. Different types of care are available in several places, while costs and quality vary widely. Identifying and locating appropriate and affordable local elder care resources can become a full time job that's stressful. Even employers and coworkers will be affected when the strain of eldercare planning makes caregivers less effective at their workplace.

1.1 Objective

To share the live location with the added users using the Global Positioning System (GPS) and the Global System for Mobile communication (GSM) modules. To produce light assistance with the assistance of LDR (Light Dependent Sensor). To form reminders using the voice assistant for medical appointments, occasions or other activities. To measure pulse which is one amongst the essential medical parameters to be checked.

2. LITERATURE SURVEY

[1] In this, they have proposed a system consisting of a robot which is used to indicate it's an emergency situation when it finds an obstacle. They had the idea of connecting the isolated person to his/her relatives, guardians or medical workers using the Bluetooth module and wireless module. [2] In this project, they have proposed a system comprising of a EM-406A model GPS module and SIEMENS TC35i model GSM module. This system was designed to find the live location and speed of a vehicle. It was also designed in such a way that if either the value of the determined maximum value of speed or the value of a fixed location of the vehicle gets changed, and a message would be sent to the registered mobile number. [4] In this, a prototype using GPS module, Arduino and GSM module was designed to identify the location of the people (particularly children) by their parents or guardians or caretakers. [6] In this, LDR and illuminance sensors were used to maintain and limit the power supply of the LED based on the light intensity of the surrounding. They have proposed that idea to reduce the excess power usage in residential, industrial or commercial places.

3. PROPOSED METHODOLOGY

In this paper, Arduino ATmega 328P IC is employed because the main controller. It receives and sends information to all or any the connected devices and make them function simultaneously. The GPS locates the latitude and longitude of the person and sends it to the Arduino. The GSM gets the placement information from the arduino and sends it to the registered user via SMS. The LED operates supported the LDR value. The heartbeat sensor gives the heart beat rate of the person at a daily interval. The voice controller is employed to supply reminder.

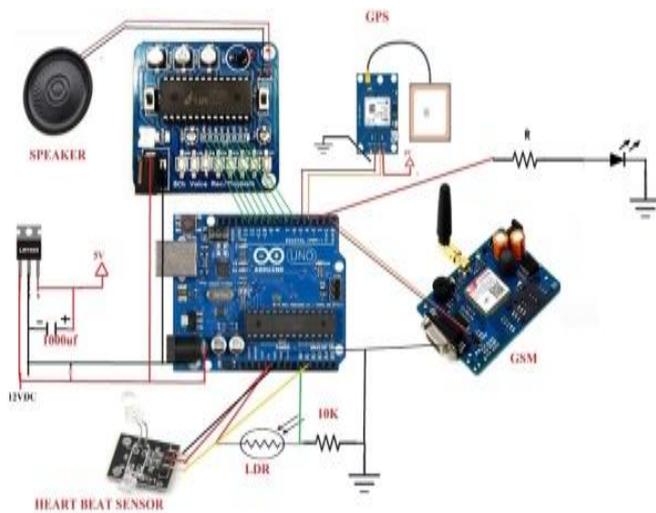


Fig -1: Circuit Diagram

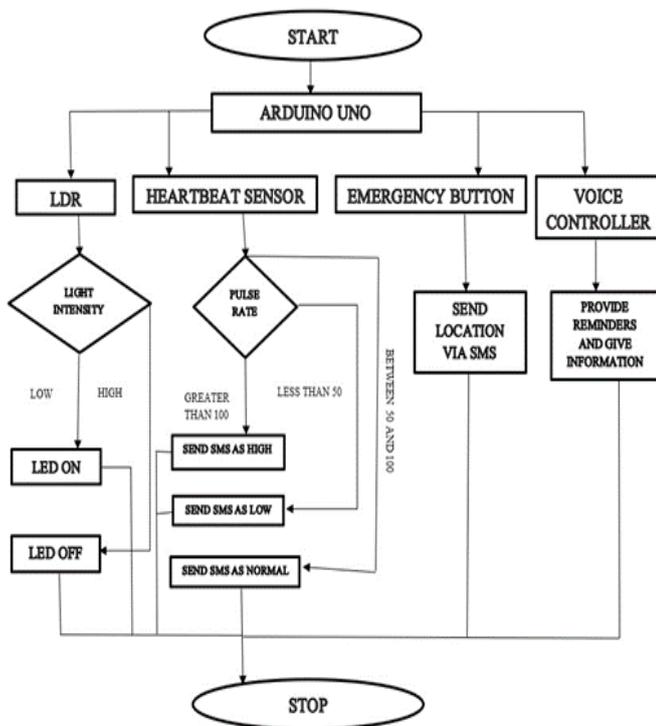


Fig -2 : Flow Chart

4. TECHNICAL BACKGROUND

4.1 HARDWARE DESCRIPTION

Arduino Uno may be a microcontroller board supported for the full function. The GPS may be a network of satellites and receiving devices to find the location of anything on Earth. The NEO-6M GPS module is a complete GPS receiver which provides a powerful satellite search capability. SIM800 features GPRS can transmit voice, sms and data information

with less power consumption. Heartbeat Sensor is an device that's accustomed measure the pulse rate. The principle behind the working of the Heartbeat Sensor is Photoplethysmograph, the changes within the volume of blood in an organ is measured by the changes within the intensity of the sunshine passing through that organ.

4.2 SOFTWARE DESCRIPTION

i) Proteus

Proteus is employed to simulate, design and drawing of electronic circuits. The software proteus has been accustomed show the working of the devices from the prototype of 'A user-friendly device for elderly people'. The GPS module helps find the situation of the person and it's sent to the registered users via short message service with the assistance of GSM module. LED operates supported the LDR. Also, a Heart Beat Sensor is employed to work out the heartbeat rate of the person and also the result's shown within the digital oscilloscope as wave form. Emergency butttons indicate the situation sharing and receiving options. All the ouput of the devices are designed such they'll appear within the virtual terminal.

ii) Pycharm

PyCharm could be a dedicated Python Integrated Development Environment (IDE) providing a large range of essential tools. It allows computers to grasp human language. It also provides speech recognition in Python to convert the spoken words into text, make a question or provides a reply. It can even program some devices to retort to those spoken words. So, this software is employed to indicate how the 8-channel voice control unit works to supply reminders and other notifications within the prototype.

4.2.1 EXPERIMENTAL RESULTS

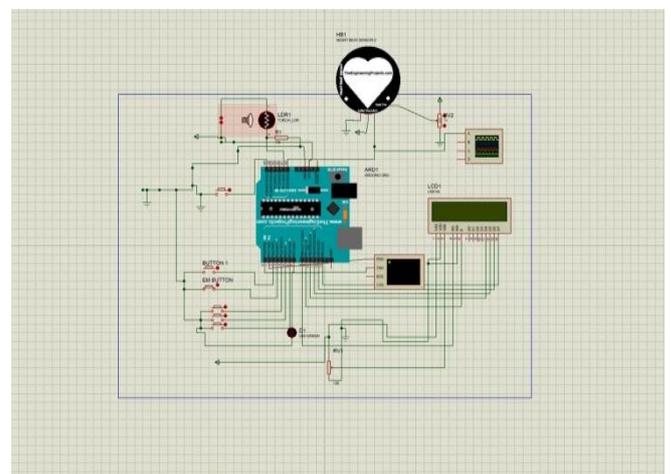


Fig -3 : Proteus Schematic Diagram

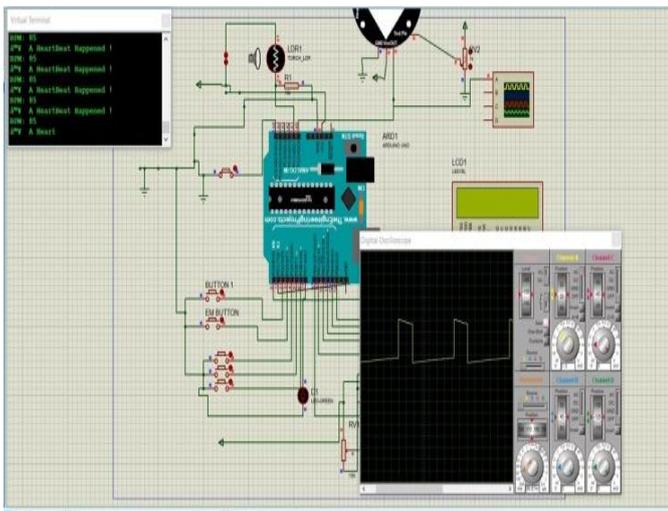


Fig -4 : Heartbeat Sensor

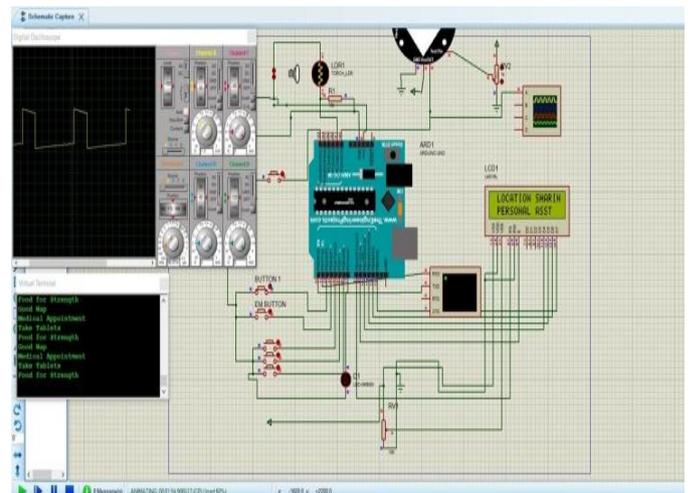


Fig -7: Remainder

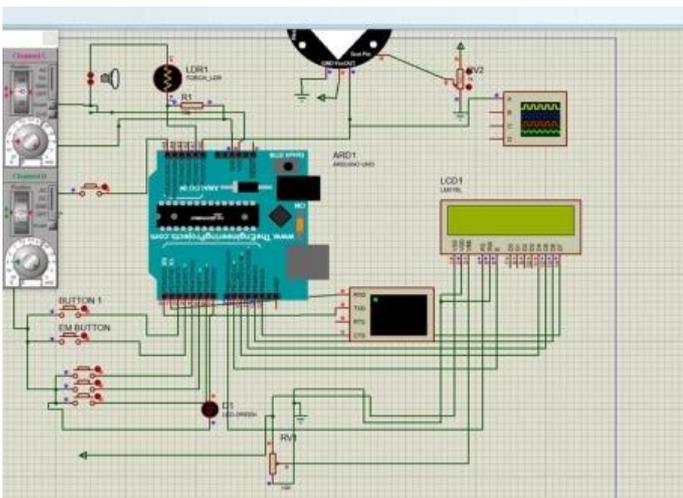


Fig -5 : LED

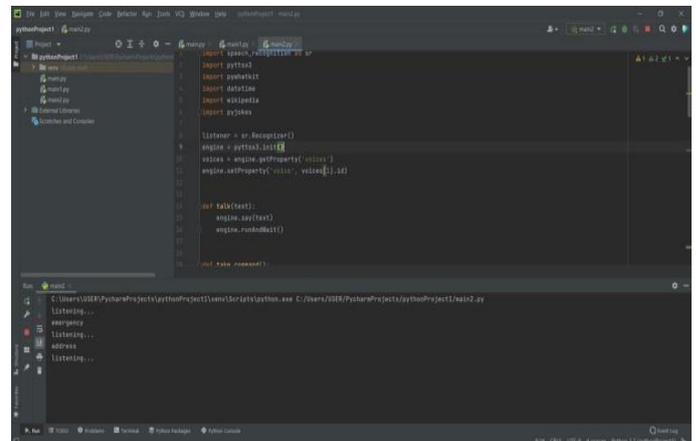


Fig -8 : Voice Control using Pycharm

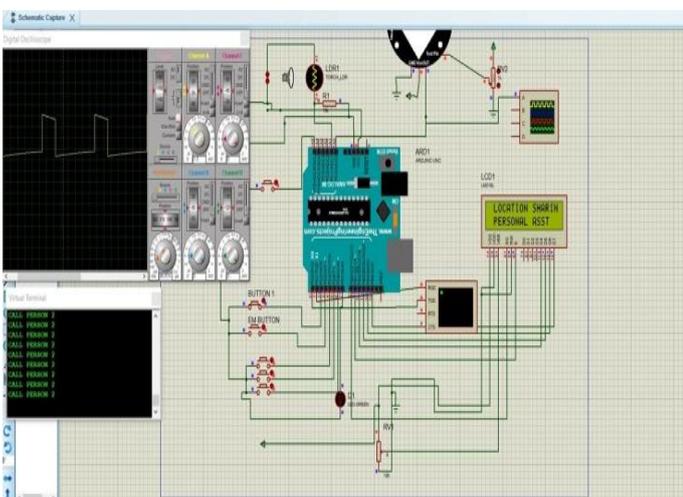


Fig -6 : Emergency Location Sharing

5. BENEFITS

When the elders are in a very dangerous situation, they will invite help using the emergency button. they will maintain their health by an everyday intake of essential medicines. attention aims to market quality of life promoting mental state, physical health and safety. Thus, by ensuring their health state we will also concentrate completely in our daily activities.

6. CONCLUSION

To solve the issues of the many families, we've got designed "A user-friendly device for elderly people". This is a transportable device to take care them easily. Providing them good elderly care by ourself or with the assistance of stops them from feeling isolated and depressed. Our help still provide them a way of community, a social life, that empowers and energizes them. Eldercare transitions are emotional and trying times for members of the family and elders alike.

7. FUTURE SCOPE

IoT can make healthcare cheaper and efficient within the future. It can help within the creation of more customized and patient-oriented equipment. Moreover, IoT will enable patients to induce better access to data, personalized care; thus, resulting in fewer visits to the hospital. Thus by implementing the above feature in our project medical aid of the elderly people would be very easy.

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