IoT-based Health Monitoring System with Medicine Remainder using Arduino Uno

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Abstract

In this occupied and rivalry world we can't checking our seniors (matured individuals) and patients persistently even though we have such an extensive amount love on them. By utilizing progressions in present innovations, we are building up this concept to save time and easy to understand framework. Our main motive is to monitor the health conditions of patient's continuously. Mainly, we have three different modules in the implementation of this concept, 1) health monitoring module, 2) medicine intake informer and 3) voice guider.

Keywords: Arduino Uno, IoT, heartbeat sensor.

1. INTRODUCTION

Because of the expanding number of elderly individuals in urban communities, it is required to create urban communities in such a path in this way, to the point that it can satisfy the developing needs of elderly individuals [1]. To this end, his Smart wellbeing can bring promising open doors and difficulties towards the acknowledgment of the accomplishment of shrewd urban communities for the people groups' prosperity and quality life. Keen Health is a developing idea for giving moderate human services offices inside shrewd urban communities [1] and [2]. The capability of the shrewd wellbeing innovations with the immense number of brilliant human services gadget and sensors has assumed a critical part inside the setting of keen urban communities for quality patient care. On account of the expanding number of elderly and debilitated individuals, there is an earnest requirement for constant wellbeing observing framework for breaking down patients' medicinal services information for their prosperity. With the quick improvement of cell phones (e.g., advanced mobile phones and tablets), and keen home innovation alongside the expanding prevalence of brilliant wellbeing, has empowered a developing number of human services professional to get to various sorts of social insurance media (e.g., X-beam, MRI, confront, voice of patients), for quality and reasonable care [3], [4] and [5]. With this late advancement and notoriety of shrewd wellbeing application, it is anything but difficult to get to the human services information in a split second and impart to different parental figures for conceivable care. This simple access to medicinal services media content raises a genuine worry about the elderly patient's condition, whether he is typical, strained, or in agony for quality care or checking. In this regard, a multimodal framework is required, which can utilize both discourse and recordings for distinguishing the condition of a patient for conceivable observing.

2. PROBLEM DEFINITION

The client needs to press the individual catch to get his administration, and after that the predefined message will be played through speaker. As a rule, most of the patients neglect to take the fitting therapeutic course at proper circumstances. There might be chances that they recall taking the pills at customary circumstances however overlook the pill which must be taken at that specific time [6]. This is a major issue and it is additionally hard to specialists to screen patients dependably. Furthermore, for the most part in the doctor's facilities, it is not a simple and accessible administration to utilize an attendant to a solitary patient only. To stay away from these issues, we have actualized this project, which can remind the patient about the admission of prescriptions at customary time interims

furthermore sends the data to the doctor about the patient if the temperature or the pulse surpasses the ordinary set point. This concept is planned essentially for patients and old matured individuals.
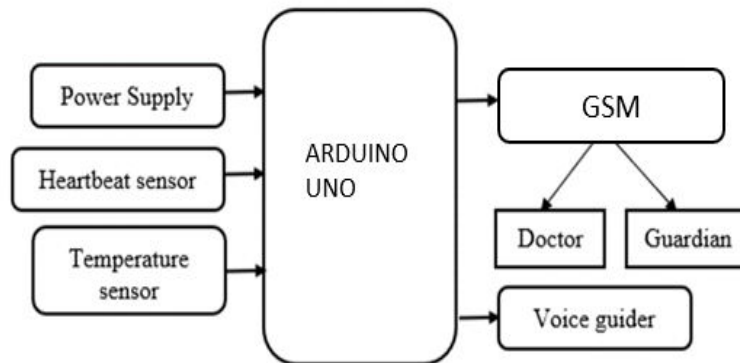

Fig. 1 Proposed block diagram.

3. PROPOSED METHODODLGY

This project goes for observing the patient's wellbeing conditions constantly. The project can be seen in three unique modules

1) Health monitoring module
2) Prescription admission source
3) Voice guider

3.1 Health monitoring

This module comprises of pulse and temperature sensors, used to quantify the pulse and temperature of the patient separately. On the off chance that any of these parameters surpass the set point, the framework instantly sends the predefined message, through IoT, to the doctor. At the end of the day, he will analyse the patient ceaselessly. This project utilizes the remote idea, IoT [7]. The crisis change associated with the fundamental module is accommodated the client. On the off chance that he feels that he needs the specialist's support promptly, he can squeeze this switch and the Arduino Uno perceives the contribution from this switch and sends the predefined message to the specialist instantly.

3.2 Prescription Admission Source

The prescription admission source comprises of RTC (DS1307), buzzer and 16X2 LCD display. The framework ceaselessly peruses the time from RTC and contrasts this time and the as of now time and if these two circumstances coordinate, the framework quickly alerts the buzzer for a predefined time and shows the name of the medication, to be taken by the patient, on the LCD.

3.3 Voice Guider

The voice guider comprises of voice playback APR9600, speaker and IR receiver. If the patient or old individual neglects to take pharmaceutical, then voice guider will remind with the medicine name. As of now we store the prescription through PC into EEPROM and voice in module channels. If, the patient heartbeat surpasses the typical heartbeat then controller send message to the registered mobile number. Key1 and key2 keys are utilized for loads ON/OFF by squeezing keys. The crisis key is squeezed voice play "require emergency".

IV. HARDWARE DESCRIPTION

4.1 Arduino

Arduino is an open-source electronic platform that is based on connection between hardware and software and it is easy to use and implement. They are designed in such a way that it read the input – water reaches a certain threshold and turn it into an output – sending the alert
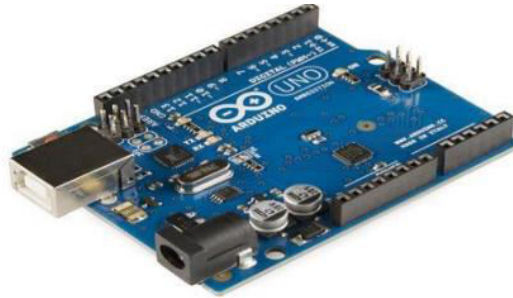

Fig 2. Arduino board

4.2 Global Position System(GPS)

Global located node, at first, is a aerial radio course structure asserted by the US Flying corps. It is an overall catalogue fly system provides earth territory information Global positioning system or near view at any rate fly machine. Global positioning system doesn't customer send a data, and it works openly of, anyway advances redesign handiness arranging information, essential arranging capacities, normal, and business customers around the world. US take care of it, and make it straightfordly.
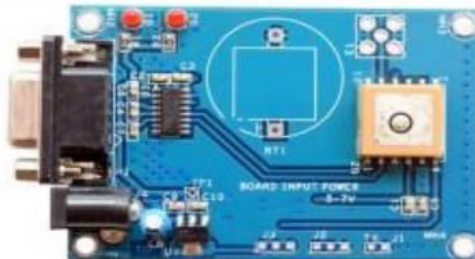

Fig.3: GPS Module

Worldwide Situating Framework an overall course system zone information each and atmosphere. Self-rousingly, anyway progressions update supportiveness arranging information. Information beneficiary in order to evaluate customer's correct place.

5. EXPERIMENTAL ANALYSIS

This gives the brief description of hardware setup of the proposed smart health monitoring system for elder people. The figures shown below consist of heartbeat and temperature sensors, used to measure the heartbeat of the patient respectively. If any of these parameters exceed the set point, the system immediately sends the predefined message, through IoT, to the doctor. In other words, the doctor will be diagnosing the patient continuously.

This project uses the wireless concept. The emergency switch shown in the figure, connected to the main module that have been provided for the user. If he felt that he requires any help immediately, then he can press the switch and the processer will recognize the input from that switch and will send a predefined message to the doctor without any late.
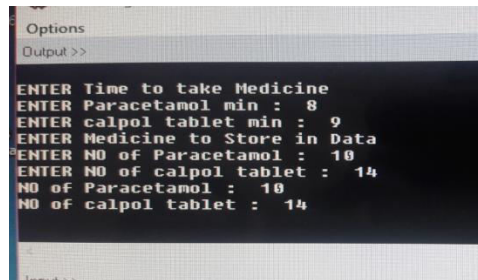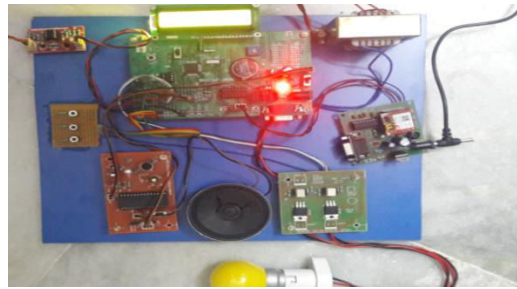
5. CONCLUSION

Because of the expanding number of matured populaces, it is pivotal to fabricate the urban areas in such a path along these lines, to the point that they can suit the exceptional needs of their residents, all the more particularly elderly individuals. Along these lines, this article presents savvy home human services with regards to brilliant urban communities to fulfil the requirements of patients or elderly individuals by coordinating the key components of shrewd urban areas, for example, keen prescription, smart transportation, smart education, smart administration, smart home, smart vitality, smart living and safety et cetera. With respect the above, a patient or elderly subject condition checking framework was proposed in a smart home human services situation. Two modalities: speech and video were utilized to screen the condition. The exploratory outcomes demonstrated that the proposed framework can be viably utilized as a part of the patient condition observing in a keen home. With respect to the future work, we will gauge more workloads by sending the model out in the open mists.

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