

Medical Chat Bot for Ambulance During Emergency Situations

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Abstract—India is among the nations also with the greatest populations. One of India's biggest problems has continued to be health misinformation due to overcrowding. Death occurs every minute as a result of unforeseen and unplanned situations. Saving a life is lucky and good. Using the stretcher's embedded microcontrollers and sensors, a smart, intelligent healthcare system will be created. In the event of an accident, it will determine the condition of the corpse and send that information to the hospital in addition to sending a server-based alert to the closest police station to avoid any potential legal issues. If this process is followed, critical care units in hospitals can have their physical requirements improved before patients arrive, potentially saving many lives.

I. INTRODUCTION

One of the biggest problems facing humanity is its health. The previous 10 years have seen a lot of attention focused on the healthcare industry. The main objective was to create a reliable method for patient monitoring that would let medical professionals keep a watch on patients who might be being treated in a hospital or going about their everyday lives as usual. Due to recently enhanced technology, patient monitoring systems have become one of the most significant developments. Currently, a more contemporary strategy is required.

In the conventional method, the main role is played by healthcare experts. They must go to the hospital ward to provide the required diagnostics and guidance. There are two fundamental issues with this strategy. First, the patient must always have a healthcare provider nearby, and second, the patient must spend some time being admitted to the hospital with biomedical equipment at their bedside.

To tackle these two difficulties, patients receive education and information on diagnosing and preventing illnesses. The second requirement is for a patient monitoring system (PMS) that is dependable and easily accessible. We can employ technology more wisely to improve the aforementioned situation.

II. RELATED WORKS

Guanqun Zhang, Amber C. Cottrell, Isaac C. Henry, and Devin B. McCombie (2016) developed continuous heart rate monitoring in the arteries. Utilizing separate wearable sensors that might provide a different and maybe more useful evaluation of the vascular condition of a patient. An appealing method for continuously monitoring blood pressure is pulse wave velocity (PWV). However, because of the confusing impact of the ejection before the ECG, innovations in PWV relying on patients who are mobile have inaccurate time estimations between the ECG and a distal PPG (PEP). inaccuracy in mobile patients (PEP). In this study, we introduced the ViSi Mobile, a portable, continuously-reading blood pressure device that can track and measure

PEP changes. PEP is determined using precordial vibrations captured by an accelerometer attached to the patient's sternum. The effectiveness of the PEP measures was evaluated on test participants who experienced a postural shift and patient activity. The accuracy of CBP in active patients may be improved, according to the results [1].

Radhika K. A., Raksha B, and Pruthviraj U. (2018) developed one of the main forces behind the growth of robotic technology: a combination of automated frameworks with the Internet of Things (IoT). Robots are controlled by smartphones in modern technology. In our method, a Driving Force GT joystick that offers accurate remote control is used. In order to remotely operate a robotic vehicle, manual control is used. A bicycle that is controlled by a joystick is more efficient than one that is web- or smartphone-driven because of the speed control. In this piece, a robotic automobile dubbed Pibot is controlled using a Raspberry Pi as a base controller to operate Using a USB joystick, real-time system and vehicle operations are remotely controlled from the ground station. For security purposes, the Pilot's camera transmits real-time video to a website through an HTTP server. Python programming is used to control the car from the remote station, utilizing consumer connection interaction (through strong Wi-Fi) [2].

The method to conserve the power of the probe circuit while remaining in contact with application requirements were created by Floriano De Rango and Domenico Barletta in 2016. Another critical issue that must be addressed while developing network technologies for WSN is Current studies have resulted in new guidelines designed specifically for sensing devices where energy monitoring would be a key component. "Internet of Things" (IoT) is a cutting-edge digital approach in which several intelligent gadgets related to the World Wide Web take part in knowledge exchange and group decision-making. Integration of Internet-connected devices for detecting or controlling energy consumption entails the integration of all types of energy-intensive equipment, including outlets, lightbulbs, air conditioners, etc. The system may occasionally be able to connect with the utility provider, which helps achieve equilibrium between energy consumption and production, or more generally, is most likely to optimize overall energy consumption. To facilitate power connectivity between connected devices and the Internet of Things infrastructures, various new trends and problems are identified in this study. To save energy and extend the system's lifetime, communication between devices is examined. By adjusting various communication settings, such as data size, the device's Radiofrequency interfaces and Internet access are examined in a variety of scenarios to determine the ideal setup for the gadget as well as the shortest device lifetime [3].

Electricity is a basic human requirement that is frequently utilized for home, commercial, and farming purposes. In this logic, energy waste costs the nation millions of dollars. Technology-based solutions, like the Internet of Things, make it possible to integrate the physical and digital worlds to manage and/or monitor resources, including, in this case, energy use. Additionally, the creation of communication devices like the XBee, which is extensively used for monitoring and controlling operations and makes it possible to swiftly and effectively create wireless sensor network while using very little energy, has been made possible by the advancement of micro- and nanoelectronics. By creating hardware and software solutions, the demonstrated prototype takes advantage of the prior benefits. Through a scalable and flexible platform employing XBee technology and a specially designed protocol for data exchange between the four modules that make up the system, it enables remote monitoring of power use in a home. Results are shown, showing how accurate the prototype is when compared to readings from a typical electricity meter. This was developed by Darwin Alulema and Mireya Zapata in 2018 [4].

The last few years have seen a variety of technological advancements. These technological advances could offer methods for obtaining and processing data that identify significant clinical features of the patients for medical care. The goal is to highlight the key functions of a voice-activated, clever expander prototype and a method for monitoring vital signs in individuals with disabilities or restricted mobility. The data processing hardware, which is integrated with the data collection software to create a global system, is Raspberry Pi and Arduino. Since this system was created using readily available technology and a fusion of several functions to provide a workable solution, its main contribution is to simplify medical treatments for patients. This was developed by Wilmer Calle and Manuel Eduardo Flores Moran in 2018 [5].

III. COMPONENTS

The ESP32 was used to create the prototype. A fingerprint sensor, a heartbeat sensor, and a breathing sensor were also utilized. To reflect the best quality-price ratio, components are chosen from those sold at nearby retailers. Finding patient information to communicate to the doctor is done via a fingerprint sensor.

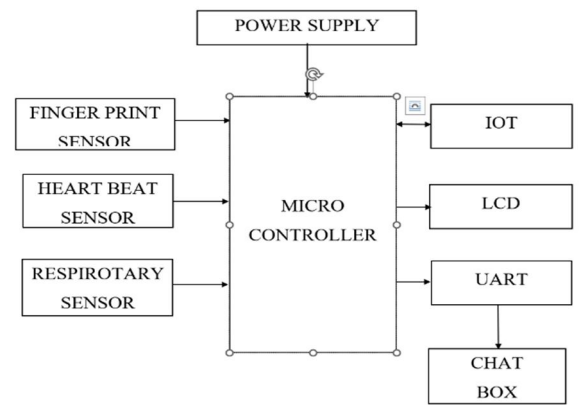


Figure 1: Block Diagram

IV. DESIGN

System-on-a-chip microcontrollers in the ESP32 family are low-cost, low-power devices that have Bluetooth and Wi-Fi built in. The ESP32 family, power amplifiers, low-noise receive amplifiers, RF baluns, integrated antenna switches, and power-management modules in addition to the Tensilica Xtensa LX6 dual- and single-core CPUs, the Tensilica Xtensa LX7 dual-core microprocessor, and the single-core Tensilica Xtensa LX7 processor. The ESP32 was designed and built by the Chinese business located in Shanghai, Espressif Systems, and is produced Via TSMC using their 40 nm innovation Excellent in functionality, this optical biometric fingerprint reader may be used in a range of finished goods, including automobile door locks, safe deposit boxes, attendance, and access control. Summary of the Product The fingerprint sensor R305 fingerprint module has a direct connection to a microcontroller UART or a PC through a MAX232 or USB Serial converter. A TTL UART interface is also possible.

The Respiration Sensor measures diaphragmatic breathing in real-world or fictitious biofeedback applications like stress reduction and relaxation training. This sensor measures breathing frequency in addition to displaying the relative depth of breathing.

A digital output of the heartbeat is created when one finger is positioned on the heartbeat sensor. When a heartbeat is detected, the beat LED blinks in time with each one. A microcontroller (BPM) may simply be linked to this digital output to calculate the beats per minute rate. It uses a finger to modulate the light.

Internet using the ESP32 controller. And the data in the cloud are in encrypted format for basic security purpose and for viewing the details an OTP generation method for the registered email id is used. The data is available with the time stamps. Once the website has verified the OTP, the message will be sent to the registered mobile number.

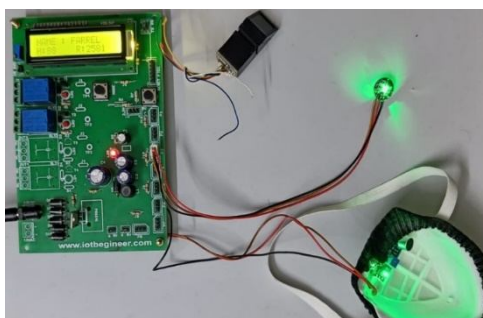


Figure 2a: Control Unit

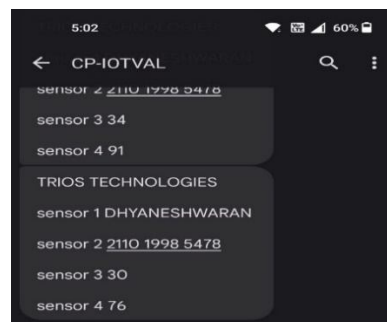


Figure2b: send a text message

V. LIMITATIONS OF THE PRODUCT

The transformer that lowers the alternating current voltage to the necessary dc output level is connected to the alternating current voltage, which is typically 220 V RMS. Following that, a full-wave rectified voltage created by a diode rectifier is first filtered by a basic capacitor filter to provide a direct current voltage. In most cases, there are some waves or alternating current voltage shifts in the final voltage in dc. Despite changes in the point

#	Name	Id no	Respiratory	Heartbeat	Date & Time	Action
1	xxxx	xxxx	xxxx	xxxx	2022-12-01 19:17:52	+
2	PARREL	3452 4548 9476	2123	71	2022-12-01 19:16:49	+
3	xxxx	xxxx	xxxx	xxxx	2022-12-01 19:15:47	+
4	xxxx	xxxx	xxxx	xxxx	2022-12-01 19:14:44	+
5	xxxx	xxxx	xxxx	xxxx	2022-12-01 19:13:41	+
6	xxxx	xxxx	xxxx	xxxx	2022-12-01 19:12:39	+
7	xxxx	xxxx	xxxx	xxxx	2022-12-01 19:11:36	+
8	xxxx	xxxx	xxxx	xxxx	2022-12-01 19:10:33	+
9	xxxx	xxxx	xxxx	xxxx	2022-12-01 19:10:01	+

Figure 3: Live patient Monitoring

of common coupling to the output voltage or the input dc voltage, a regulator circuit reduces ripples while maintaining the same dc value. This voltage regulation is often accomplished using one of the widely used voltage regulator IC chips.

VI. FURTHER IMPROVEMENTS

The current prototype has room for improvement. If, for some reason, the doctor is not in the ambulance, we can still communicate with the doctor via a chatbot created in Python. The physician will communicate with the paramedics via the chatbot and give them instructions on the necessary procedure.

VII. CONCLUSION

Due to the significance of health care services to our society, automating them relieves human workers of stress and makes measurement easier. Patients are more likely to trust this system because of its transparency. The doctor may assess the patient's current condition while continuously monitoring the patient's condition, which will help him decide which treatment is most suited.

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