Automated Paralysis & Coma Patient Health Care Monitoring System for the Future using IOT

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ABSTRACT: These days, time is a very valuable resource and can make the difference between life and death. In the modern world, the technologies have grown much and the whole world is focusing only on developing the technologies. When a patient enters the comma or loss of motion stage, it is challenging to foresee when he/she will be out of it. It very well might be inside the space of days, weeks, or may try and require long stretches of time together. Because of this present circumstance, it becomes hard for the emergency clinic staff to continuously screen and oversee the patient and consequently slight body developments and life-like signs or unusual exercises might slip through the cracks. To forestall such a circumstance, the proposed framework has many wearable sensors fitted to the patient's body. Sensors utilized are pressure sensor heartbeat sensor, temperature sensor, EEG sensor as goggles. These sensors assist with observing the patient's vitals and this information are put away in the cloud server and can be gotten to when the need emerges through a PC or smartphone.

KEYWORDS: IoT, GSM

I. INTRODUCTION

The medical staff can act promptly, exactly when and where it is needed to save human lives. Our solution's architecture allows gathering data from any medical signal processing unit and sends it straight to the cloud using encrypted communication protocols. What makes Axium Medicine unique refers to the cloud integration with hospital departments' structure, awareness of different medical staff roles and capabilities, privacy data interest, updates sent to patient's relatives as well as a modern responsive adaptive user interface. As a part of our experiment, aimed for testing our platform's capabilities, we have built a biomedical wireless sensor wearable device that provides real-time parameters (temperature and heart rate). Such a system favours medical equipment real time monitoring by using cloud services and permanently keeps alive the link between doctors and their patients, drastically increasing the EMS response time
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II. RELATED WORK

In 2019 LUISA FLOHR, SHAILENE BEAUDRY, K TANEILLE JOHNSON, NICHOLAS WEST clinician Driven Design of Vital PAD— An Intelligent Monitoring and Communication Device to Improve Patient Safety in the Intensive Care Unit. This says the paediatric emergency unit is a complex climate, in which a multidisciplinary group of clinicians (enrolled medical attendants, respiratory specialists, furthermore, doctors) constantly notice and assess patient data. Information is given by different, and frequently truly isolated sources, mental responsibility is high, and group correspondence can be tested. Our point is to consolidate data from various checking and restorative gadgets in a portable application, the Vital PAD, to work on the effectiveness of clinical independent direction, correspondence, and in this way persistent security. In 2020 TATI ERLINA, MARREZA RIFA SAPUTRA, RAHMI EKA PUTRI A Smart Health System: Monitoring Comatose Patient's Physiological Conditions Remotely. This says Physiological condition monitoring is an indispensable part of comatose patient treatment. Unfortunately, the bedside monitor, a tool that is commonly used to detect the patients' vital sign is only readable by medical officers and need to be observed at a close distance. This research focuses on the development of a system that enables comatose patients' families to read the vital signs effortlessly without having to be continued around the patients who are hospitalized in intensive care units (ICU).In 2020 FAIZAN SHAKEEL, VEENA IoT Monitoring Health Care System using Internet of Things - An Immaculate Pairing in health care is aimed at empowering people to live a healthier life by wearing connected devices. The healthcare industry has perpetually been at the forefront in the adoption and utilization of information and communication technologies (ICT) for efficient healthcare administration. Recent developments in wireless sensors, communication, and information network technologies have created a new era of the Internet of things (IoT). Connected health care is a very important application of the Internet of Things. The concept of a

connected health care system and smart medical devices bears enormous potential not just for companies, but also for the well-being of people in general. In 2021 LUTFUN NAHAR, SYEDA SAMIHA ZAFAR, FARIA BINTA RAFIQ IoT Based ICU Patient Health Monitoring System -Internet of Things (IoT) empowers people to get a more significant level of mechanization by creating a framework, utilizing sensors, and interconnecting gadgets and Internet. In ICU, silent checking is basic and the most significant action, as little delay in choice identified with a patient's treatment may cause perpetual inability or even passing. Arranged sensors (either worn on the body or introduced into in our living environmental factors), allow us to acquire rich information collectively for our physical and mental prosperity. Currently, to start with, the chances and difficulties of IoT can be featured in understanding this vision of things in terms of medicinal services [4]

III. PROPOSED ALGORITHM

The comatose stage is a state where a human body doesn't show any body movements. A person enters into a coma stage when he/she experiences sudden and extraordinary shock which can result from accidents, or this can happen when blood supply to the brain is cut-off or when blood pressure drops to a very low value. Though there aren't any voluntary actions from the patient, life exists and the heart beats to pump the blood. It is just that there aren't any limb movements and Paralysis occurs when you're unable to make voluntary muscle movements. A nervous system problem causes paralysis. Uninjured nerves send signals to muscles. Those signals make muscles move. When you're paralysed, or have paralysis, you can't move certain parts of your body. In such a situation, it becomes quite difficult for the doctor or healthcare worker to manually check the patient at regular intervals of time for movements. So, the proposed system consists of numerous sensors to monitor heartbeat, temperature, blood pressure and all these parameters are monitored round the clock. It also has an Arduino microcontroller to manage the circuitry which collects these data and uses a Wi-Fi module to display these results on a webpage. A customized webpage is used instead of an open-source platform and the outputs are registered. In case any abnormality is detected, an message is sent to the concerned family member/doctor through a message gateway protocol. So subsequently, there isn't a Retracted need for a doctor to be always present to have a check on the patient. This system continuously monitors the patient and updates the outcomes of the monitoring.

IV. RESULTS

In this proposed idea, the fundamental boundaries of the patient are checked and refreshed on the page by the Wi-Fi module through the cloud. The sensors are connected to the patient's body. These sensors have additionally interacted with the Arduino processor which gathers all the results from the sensor and cycles it. Limit esteem is set for every sensor's result. On the off chance that at any occurrence, the sensor's result surpasses this edge, the message is shipped to the concerned specialist relatives. The observed qualities are shown on a uniquely designed page. This page likewise stores the past checked information under the set of experiences area.
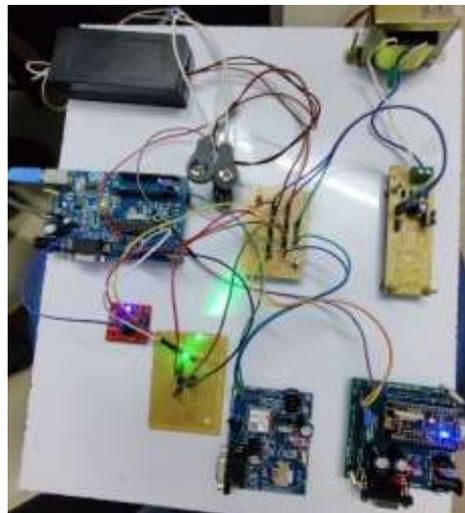
The above Setup consists of a heartbeat sensor, pressure sensor, temperature sensor, and finally EEG sensors, these sensors are used to monitor the comma patient and paralysis patient and send their data through IoT to the web server of the hospital management and there is also an alert messaging system which sends alert messages if the patient in critical condition to the caretaker.
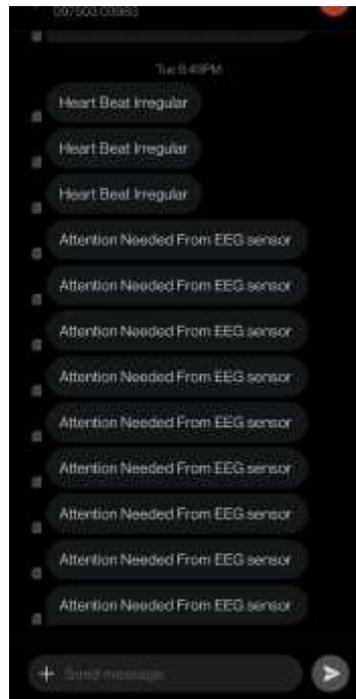
The above figure show if any critical situation occurs the alert message is sent to the caretaker using the GSM.
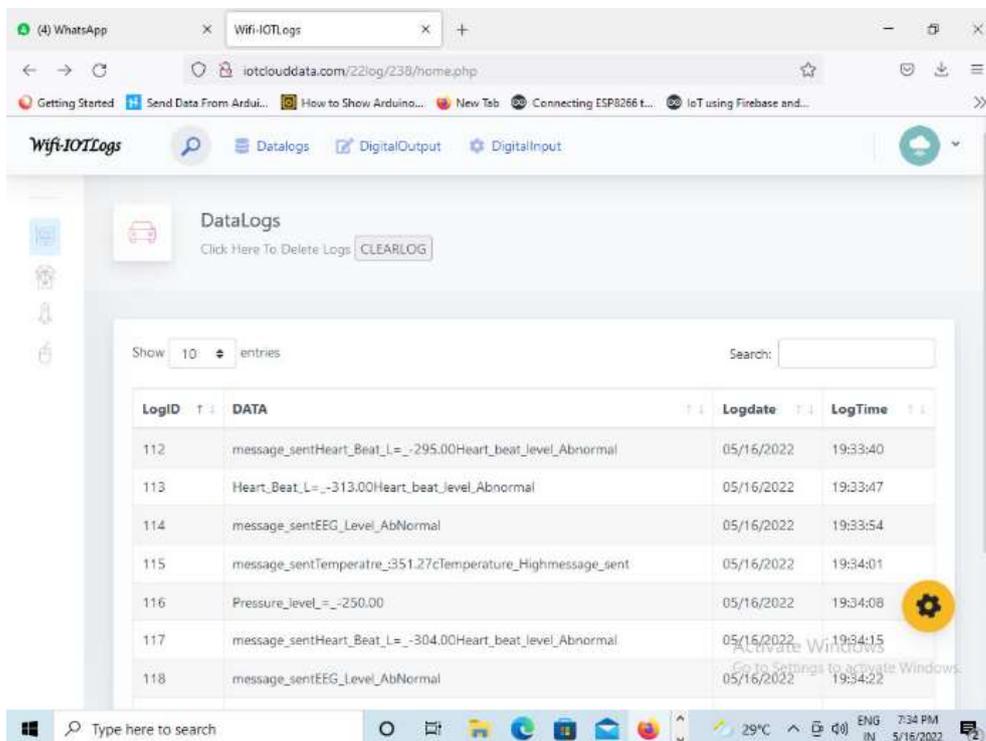
The continuously monitored data is transferred to the webserver and it is useful for monitoring the patient continuously.

V. **CONCLUSION AND FUTURE WORK**

An effective healthcare system for monitoring the vital parameters of a patient in comatose stage or in a paralysis condition, it is built using various sensors which coordinate with processor. This processor in turn processes this data and transfers this to the Wi-Fi module. Wi-Fi module then transmits the data via the cloud to the webpage. It also makes sure to store the previously read data in a proper form as a database for a future access. An alert message system is also setup to counter emergency situations by sending an alert. This data can be viewed by logging on to the webpage. The efficiency of EEG in our work is low because by using the available components we obtain only a partial out and there will be some fluctuations in the output. But in future by using the advanced components and by using more number of electrodes we can increase the efficiency of EEG.

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