International Journal of Scientific Research in Engineering and Management (IJSREM)
Volume: 07 Issue: 04 | April - 2023 Impact Factor: 8.176 ISSN: 2582-3930

SMART TRACKING SYSTEM FOR AUTISM PATIENTS

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Abstract: Different wireless technologies have existed. Systems for tracking patients have been developed recently to keep track of their performance. The tracking of the patient's movements is required in addition to the performance because it relates to safety precautions. The tracking will then enable the carer to locate the patients. The primary objective of this suggested plan is to monitor the patients, and if any strange activity is discovered, the caretakers are alerted with an alarm. The carers will be able to locate their patient within the perimeter with the help of this project. The idea is made up of two parts. The first is the classroom unit, which employs a Bluetooth Low Energy (BLE) device that looks like a watch. The bus unit is the second one. There is a Mobile module where the App is put. All of the patient information is transmitted to the appropriate carers using an Android application.

Key words – autism, panic warning, bluetooth module, temperature, fall detector, vibration

I.INTRODUCTION

The number of inserted devices that can be connected to a condition over the internet is enormous. The development of microcontroller-based frameworks that replace outmoded, complex electrical circuits is made possible by the addition of these kinds of publications. By using IoT, we can control any electronic hardware in homes and businesses. Additionally, we can view and retrieve data from any sensor from anywhere on the planet. The Arduino microcontroller board performs the duties of a small computer. The Node MCU serves as a platform for creating a connection with essential programming. A scale controller called the Arduino UNO may be used to handle temperature and moisture data from a DHT 11 sensor and send it to an ESP8266 module. (wi-fi module).

We have several areas in this document where you can track the temperature and humidity. Section II reads the DHT sensor module's output and concentrates temperature and dampness values into an appropriate number in rate and Celsius scale, Section III framework shows mugginess and temperature on LCD, Section IV characterises investigating and planning the framework engineering, Section V illustrates the result and future degree, and Section VI summarises. In the general healthcare setting,

II. SURVEY

ADVANCED SURVEILLANCE MONITORING WILL IMPROVE PATIENT SAFETY AND CLINICIAN WORKFLOW. Clinical monitoring systems have been utilised in inpatient hospitals for many years, but there hasn't been much attention paid to system analysis or an assessment of the impact on clinician workflow or patient care. The study demonstrates how system-level design and analysis can be applied in this area, with a focus on reducing failure to rescue instances through early patient deterioration identification. Biomedical and Health Informatics Journal, IEEE (Volume: 23, Issue: 2, March 2019)SYSTEM FOR IOT PATIENT MONITORING BASED ON TCP/IP PROTOCOL. SYSTEM This Internet of Things (IoT)-based observation and intimation of a paralysed patient healthcare system enables a paralysed patient's health issues, condition, and various messages to be conveyed to the doctor, nurses, or carer via the internet or by sending a message. Our suggested system reads the patient's data to ascertain the reason when a patient's blood pressure, oxygen level, or any other sensor reveals an abnormal figure. A message or the internet will be used to inform the doctor or carer of any worst-case scenario. 2021 will see the 7th International Conference on Advanced Computing and Communication Systems. (ICACCS). A remote patient monitoring system that can spot respiratory problems and other life-threatening circumstances. Given the situation, it is necessary to remotely monitor a substantial number of patients. Remote communication is required for both telemedicine and family-centered medical practises. Today, it is critical to set up a system for monitoring hazardous circumstances like elderly individuals fainting.The device was created and tested by our researchers, and we are currently constructing the internet user interface. the 43rd spring seminar on electronics technology in 2021 (ISSE). Patient Monitoring System Using IOT and an ECG Patient monitoring is given top attention in today's healthcare system, whether it is in hospitals or at home. The intelligent patient monitoring system proposed in this study uses a range of sensors to autonomously monitor the patient's health. The data is then processed on a Raspberry Pi, and useful information is later saved to the IoT cloud. The main purpose of the system would be to extract the bio signal and ECG using an ECG sensor. A patient's condition can be monitored by doctors, nurses, and family members. Continual monitoring and graphical displays of the patient's data allow for monitoring their condition remotely. Additionally, a notification is sent to the doctor, nurse, or relative if the situation deteriorates, and

either one of them will have the choice to start a video call. International Conference on Robotics, Electrical, and Signal Processing Techniques, 2019 (ICREST).

III. PROBLEM IDENTIFICATION FOR BLIND

1. EXISTING SYSTEM:

Today's humidity and temperature monitoring systems come in a wide variety, some of which include IOT sensors, cloud services, computer and digital technology, as well as computer and digital technology. In this essay, we'll use the Internet of Things to build a system for monitoring temperature and humidity. Even if all of the working models at the moment are great, several laboratories are having trouble finishing their work. We will be able to calculate the exact values of the measurements in our atmosphere thanks to this study. This model is also unreliable for recognising temperature and humidity values because it was deployed and trained using temperature measurements from other low-longitude locations. We will be able to get accurate weather information at all times thanks to this programme.

2. PROPOSED SYSTEM:

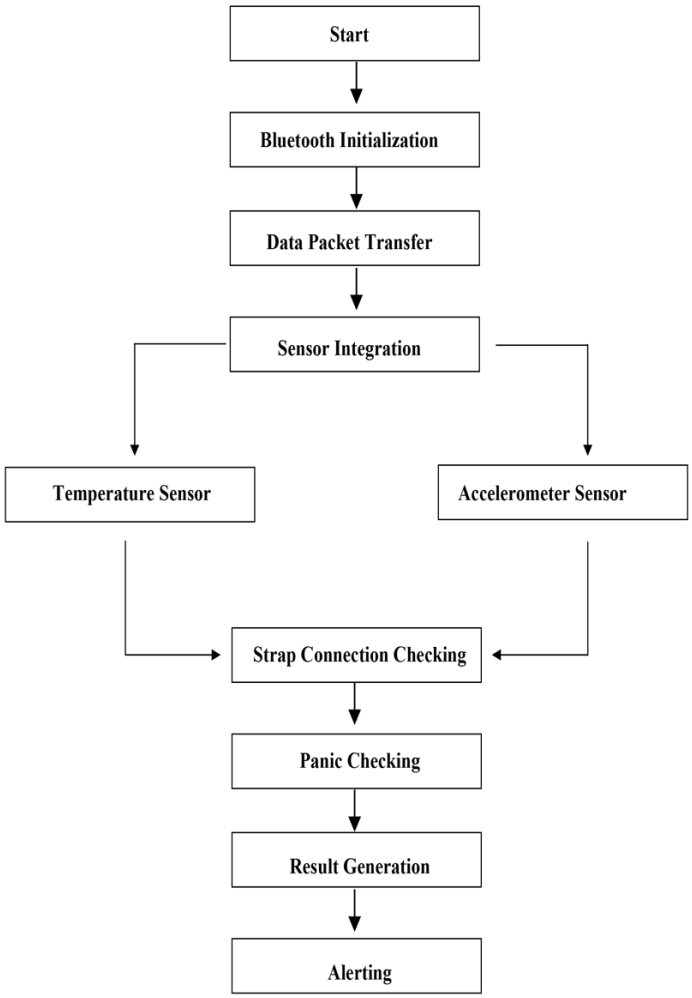
In this ESP project, we'll learn how to estimate temperature and recognise fall using the sensor and hub MCU. Through this work, we will obtain the values for our PCs and mobile devices. As a result, we can calculate the exact temperatures in the lab. It is straightforward to use and understand. A recipient in need is sent real temperature information via a remote signal. The sensor detects With Bluetooth, temperature and acceleration data can be presented on the app platform up to 15 yards away. With the help of the Bluetooth module, we may access the data.

3.1 Statistics

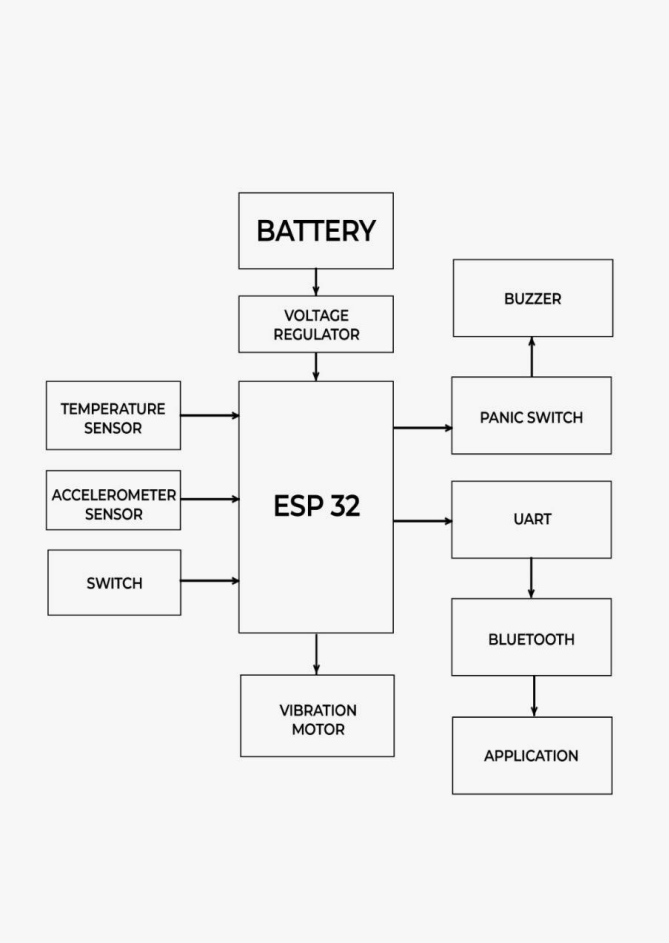
1. Communication, social interaction, and behaviour are all impacted by the complex developmental condition known as autism spectrum disorder (ASD). Numerous statistics about people with autism include:
2. The Centers for Disease Control and Prevention (CDC) estimates that one in every 68 children in the United States has an ASD diagnosis. All racial, ethnic, and socioeconomic groupings are included in this estimation.
3. Age of diagnosis: Although ASD can be identified as early as age 2, most diagnoses occur around the age of
4. Gender disparities: Boys are almost four times as likely than girls to receive an ASD diagnosis.
5. Comorbidities: Many people with ASD also have gastrointestinal issues, anxiety, sadness, and attention-deficit/hyperactivity disorder (ADHD).
6. Educational results: Children with ASD may experience difficulties in school due to recurrent behaviours and interests, issues with social interaction and communication, and repetitive behaviours. However, many kids with ASD can advance in their intellectual and social development with the right help and treatments.
7. Employment outcomes: It can be difficult for adults with ASD to find and keep a job; estimates imply that just 14% of adults with ASD work in competitive, community-based jobs.
8. It is significant to remember that each person with autism is distinct and may have various difficulties and talents. Additionally, because there is still work to be done in this area of study, figures could change.

IV. PROPOSED METHODOLOGY

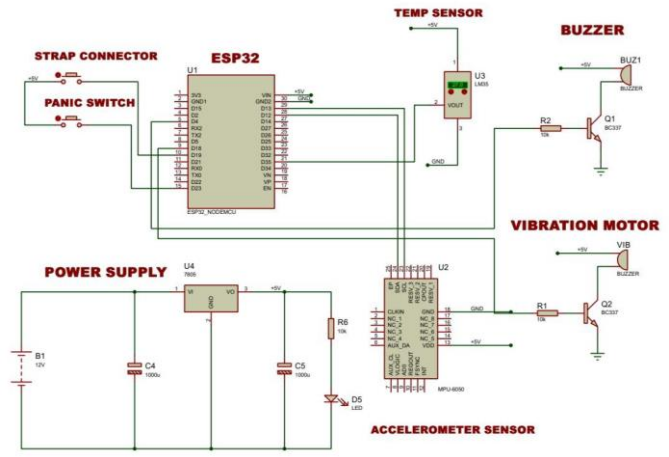
4.1 FLOW CHART



4.2 BLOCK DIAGRAM:



4.3 CIRCUIT DIAGRAM:



4.4 METHODOLOGY:

BATTERY:

This board was created for sealed acid 12-volt batteries. The battery is entirely automatic and prevents malfunctions when we use this board. This board features four connectors, including two DC input connectors, two connectors at the same output, and a negative-positive print. Six single cells are connected in series to form a 12-volt battery, which has an output voltage of 12.6 volts when completely charged. A standard RV or marine craft 12-volt battery has a 125 AH rating, meaning it can provide 10 amps of current for 12.5 hours or 20 amps for 6.25 hours. Car batteries typically have a voltage of 12 volts. One of the 12 volt battery's most popular applications is intended for use in vehicles like cars and boats. In these circumstances, the battery might be able to be recharged since the car simply need power to start.

UART COMMUNICATION:

A piece of computer hardware known as a UART, or Universal Asynchronous Receiver/Transmitter, converts data between parallel and serial modes. UARTs are frequently used in conjunction with standardised communication protocols such EIA, RS-232, RS-422, or RS-485. The term "universal" denotes that the data format and transmission rates are programmable. A driver circuit that is separate from the UART manages the electrical signalling levels and techniques (such as differential signaling, etc.).A UART is often a single integrated circuit (or a portion of an integrated circuit) used for serial communications across a serial port on a computer or peripheral device. Today, UARTs are frequently seen in microcontrollers. A dual UART, sometimes known as a DUART, integrates two UARTs onto one chip. Eight UARTs are packaged together as an octal UART, or OCTART. Using the NXP SCC2698 as an example.

TEMPERATURE SENSOR-LM35D:

Precision integrated-circuit temperature sensors of the LM35 series have an output voltage that is linearly proportional to the temperature in Celsius (Centigrade). In comparison to linear temperature sensors calibrated in degrees Kelvin, the LM35 has an advantage because the user does not need to deduct a significant constant voltage from the output to obtain appropriate Centigrade scaling. The LM35 can give typical accuracies of 1/4°C at room temperature and 3/4°C over the entire temperature range of -55 to +150°C without the need for any external calibration or trimming.

Trimming and calibration at the wafer level ensure low cost. Because of the LM35's low output impedance, linear output, and exact intrinsic calibration, it is particularly simple to interface with readout or control circuitry. It can be used with plus and negative power supplies as well as single power supply. It barely uses 60 A from its supply, therefore it self-heats very slowly—less than 0.1°C in calm air. The LM35 is rated for operation over a temperature range of -55° to +150°C, while the LM35C is qualified for operation over a range of -40° to +110°C (-10° with increased precision). While the LM35C, LM35CA, and LM35D are also offered in the plastic TO-92 transistor packaging, the LM35 series is available packaged in hermetic TO-46 transistorpackages.

4.5 COMPONENTS REQUIRED:

- Micro Controller
- Battery
- Voltage Regulator
- UART
- Bluetooth
- Temperature Sensor
- Accelero Meter
- Switch
- Buzzer
- Vibration Motor

4.6 SOFTWARE USED:

- Android
- MP Lab
- Proteus 8

V. CONCLUSION

The smart band is made to allow for remote tracking of the wearer via low frequency technology. In general, it is more accurate than how they already approached gps techniques because Bluetooth is used here as the primary means of communication with the Android application.Additionally, a user-friendly Android tracking application was developed.

VI. ACKNOWLEDGEMENTS

We have great pleasure in presenting this report on "SENSOR NETWORK FOR QUANTIFICATION OF INFANT GENERAL MOVEMENTS FOR THE DIAGNOSIS OF CEREBRAL PALSY", we would like to express our gratitute to Sri Shakthi Institute of Engineering and Technology, HOD of Biomedical Engineering Prof. B.Sankaragomathi. We take this opportunity to thank all those who have contributed in successful completion of this project We have great pleasure in presenting this report on "SENSOR NETWORK FOR QUANTIFICATION OF INFANT GENERAL MOVEMENTS FOR THE DIAGNOSIS OF CEREBRAL PALSY", we would like to express our gratitute to Sri Shakthi Institute of Engineering and Technology, HOD of Biomedical Engineering Prof. B.Sankaragomathi. We take this opportunity to thank all those who have contributed in successful completion of this project

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