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Li-Fi Based Health Monitoring System for Infants Using IOT

Ayisha Begum¹, Mohammed Basheer K², Mohammed Asif³, Mohammed Adil⁴,

Assistant Professor, Department of Biomedical Engineering, Dhaanish Ahmed Institute of Technology, K.G Chavadi, Tamil Nadu, India¹

U.G. Student, Department of Biomedical Engineering, Dhaanish Ahmed Institute of Technology, K.G Chavadi, TamilNadu, India^{2,3,4}

ABSTRACT Reliable checking of the patient's health condition in the prosperity center is either manual or remote unfaltering quality (Wi-Fi)- based structure. A Wi-Fi-based system winds up lazy in pace as a result of exponentially copied versatility. In this circumstance, delicate precision (Li-Fi) finds the spots wherever Wi-Fi is material to various highlights of quick data compose. Beside the pace factor, Li-Fi is increasingly critical fitting in sanatorium utility for watching the patient's conditions despite repeat impedance with the human body. This paper proposes an execution of Li-Fi social order in the crisis center for controlling the patient's essentials, for instance, temperature, heartbeat, and respiratory conditions using specific sensors. The gathered substances from the sensors are transmitted to the sink, and further, this information has dealt with the usage of a microcontroller and sent to an introduction unit as mechanized. Given the thinking of seen light correspondence, a model mannequin is created with the microcontroller and essential sensors as peripherals and attempted it is working. Thusly, the utilization of Li-Fi as health watching device.

KEYWORDS: : Social insurance checking, Light transmitting diode light, Medical hardware, Patient condition, Visible light correspondences

I. INTRODUCTION

Remote correspondence plans like W-Fi particularly utilize radio/microwave frequencies for information transmission, basically on account of the likelihood of high affectability collectors and capacity to give expansive inclusion at low rates and high-recurrence observable pathway correspondence. In any case, radio recurrence can bolster just a limited transmission capacity because of kept range accessibility. The idea behind this correspondence scheme is the transmission of 'Data through edification'. The power of the LEDs is moved by turning the current experienced them at high speeds. In any case, the human eye can't see this change, and the LEDs appear to have a reliable power. This ON-OFF development of LED lights energize data transmission using twofold codes. Electronic devices gain data with photodiode inside the region of light detectable quality. This infers wherever where LEDs are used; lighting globules can pass on the light just as remote relationship meanwhile. With extending need for remote data, nonappearance of radio range and issues with hazardous electromagnetic defilement, Li-Fi ascends as another greener, increasingly gainful and more affordable choice as opposed to Wi-Fi. Remote structures and to overcome the constrained proportion of radio-based remote range open by achieving an absolutely remarkable bit of the electromagnetic range.

II. RELATED WORK

This device can assist with a range of difficulties, It has the potential to provide high-speed, secure, and reliable communication, especially in areas where traditional wireless technologies may face interference or congestion. In the context of health monitoring of infants, LiFi can be used to transmit real-time data from sensors attached to the infant's body to a central monitoring system.

III. METHODOLOGY

A real time clock (RTC) is a digital clock to keep accurate track of time. It is in the form of audio for day-to-day activities remind. Getting lost can be prevent by using RFID location tracking system. When a person put his RFID tag to RFID reader, then RFID reads tag’s data and send it to microcontroller and then microcontroller compares this data with pre-defined data. If it coordinates, then the buzzer sound Reminder for daily activities includes taking food, medicine and having sleep on proper time is informed to the patient. Without caretaker’s concern patient can’t remove the device because of the incorporated lock in the system. MOSFET is helps to operate it. A camera is used to recognize relatives and friends who are nearer to patient. It can detects the image and using machine learning algorithm the output send as an audio with name and relationship between person and the patient. DF mini player can play music at particular intervals of time.

IV. EXPERIMENTAL RESULTS

The following figures shows the main block diagrams of the assistive device.

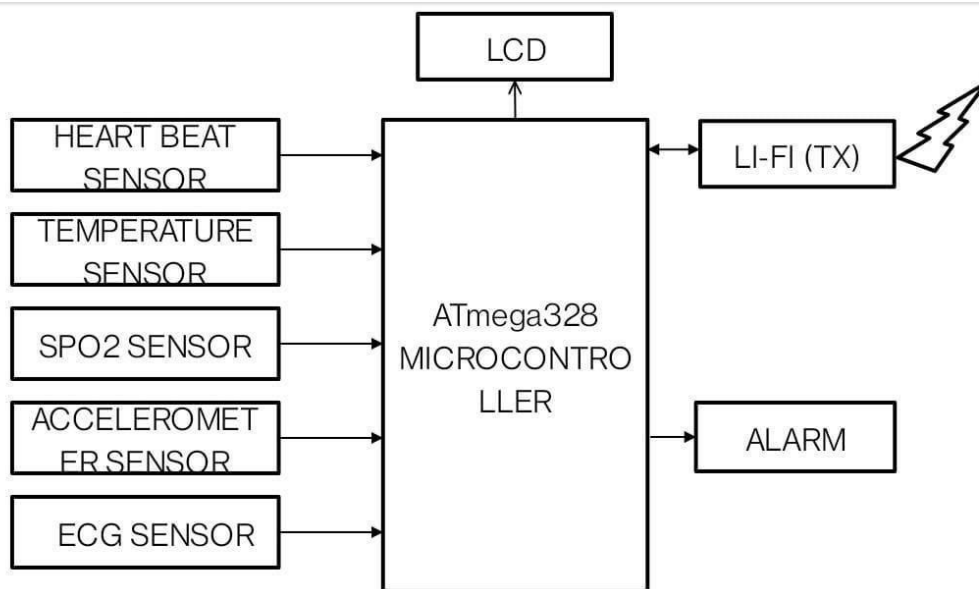


Fig.1.1 Fig.1 Block diagram of transmitter side

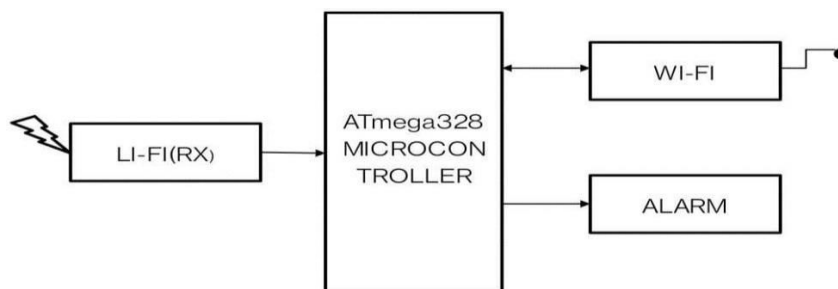


Fig.1.2 block diagram of receiver side

COMPONENTS OF BLOCK DIAGRAM:

- ARDUINO UNO
- LCD DISPLAY
- TEMPERATURE SENSOR
- HEART BEAT SENSOR
- SPO2 SENSOR
- MIC
- ECG SENSOR
- ACCLEROMETER SENSOR
- ALARM
- IOT

ARDUINO UNO

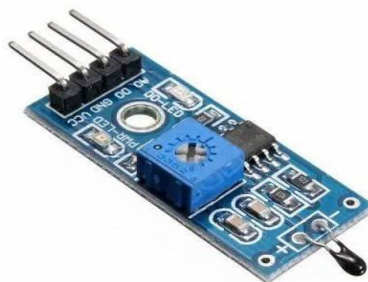
The Arduino Uno is a microcontroller board based on the ATmega328. It has 14 Digital input/output pins (of which 6 can be used as PWM outputs), 6 Analog inputs, a 16 MHz crystal oscillator, a USB connection, a power jack, an ICSP header, and a reset button. It contains everything needed to support the microcontroller; simply connect it to a computer with a USB cable or power it with a AC-to-DC adapter or battery to get started. The Uno differs from all preceding boards in that it does not use the FTDI USB-to-serial driver chip. Instead, it features the Atmega8U2 programmed as a USB-to-serial converter.



Fig; Arduino uno

TEMPERATURE SENSOR

- A temperature sensor is an electronic device that measures the temperature of its environment and converts their input data into electronic data to record, monitor, or signal temperature changes.



Fig;temperature sensor

HEART BEAT SENSOR

- Heart beat sensors are designed to give digital output heart beat when a finger is placed on it. When the heart beat detector starts working, the light emitting detector (LED) blinks simultaneously for every heartbeat.



Fig;heartbeat sensor

SPO2 SENSOR

- SpO2 sensors detect changes in your oxygen levels by looking at the colors of your blood. It uses the way light passes through your finger to measure the volume of oxygen in your blood and sends the information to the device's screen



Fig;spo2 sensor

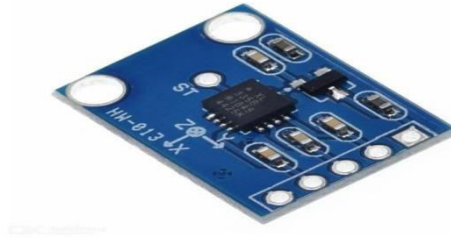
ECG SENSOR

This sensor is a cost-effective board used to measure the electrical activity of the heart. This electrical activity can be charted as an ECG or Electrocardiogram and output as an analog reading.



Fig;ECG sensor ACCELEROMETER SENSOR

- An accelerometer is a device that measures proper acceleration, the acceleration experienced relative to freefall.



Fig;accelerometer sensor

VI.CONCLUSION

The progression in the zone of remote correspondence gives us the versatility to make our lives consistently fulfilling and safe. Here the recommended structure replaces the fundamental for Wi-Fi and lights can be used as a source to send information. sending information through Li-Fi makes it snappier and progressively clear Its probability pulls in a ton of essentialness for a business in the correspondence pieces and will before long can utilize this progress at higher speeds in each field of correspondence and will in like manner associate clear fragment of data in a succinct minute. This as time goes on decreases the time use, and the work result is appealingly extended. Hence this progress will be a greener, consistently secure and cleaner framework for correspondence. In any case, nowadays the Internet of things is other than an essential bit of the world, so we Use the Wi-Fi the time use and the work result is adequate widened. Hence this improvement will be a greener, legitimately secure and cleaner framework for correspondence. Notwithstanding, nowadays the Internet of things is in like manner a beast part on the planet, so we Use the Wi-Fi only for exchanging data to the Internet Server to Maintain the Patients prospering conditions in different events for a future reference

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