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Health Care Monitoring for Alzheimer's Patients Using Finger Print

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ABSTRACT

The Health Care Monitoring Systems have rapidly evolved during the past two decades and the potential changed the health Although smart health monitoring systems automate patient monitoring tasks and improving the workflow management, their efficiency in monitoring table. The fundamental element of people's needs is health. Humans face a huge of surprising death and plenty of diseases that are a result of lack of treatment to the patient's at the right time. The main objective of this project is to develop reliable sensible patient health observance system victimization IOT so the attention professionals monitor their patient's. The sensor will be either worn or be embedded into the body of the patient's, to unendingly monitor their health. The knowledge collected in such as fashion will be old on analyzed and well –mined to try and do the first prediction of disease, A mobile device based attention observance system is developed which may offer period on-line data regarding physiological condition of a patient primarily consist of the sensor, the information acquisition unit Arduino, and programmed with code.

INTRODUCTION

Alzheimer's disease is a type of mental illness which has characteristics of progressive problem with reasoning and behavior of the middle or old age people. Dementia is a syndrome that leads to neurological disorders characterized like cognitive impairment and memory less. It is a progressive disease which starts slowly and gets worse overtime. The patient has the following characteristics, loss of reasoning ability, judgement, poor decision making and degradation of many critical skills. His makes it difficult for the patient to navigate through daily activities. focusing on the problems experienced by the patients and the caregivers, we can say that the provision of the patient treatment and care taking of them could quiet a difficult task. the caretakers are required to co-operate with situations such as personality changes, loss of memory, confusion and irritation.

Alzheimer's presents a significant challenge in the realm of medication management. the cognitive impairments associated with the disease often result in patients forgetting to take their medications, leading to severe health complications and reduced efficacy of treatments. Ensuring that Alzheimer's patients adhere to their medication schedules is critical for maintaining their health and well-being. However, existing solutions such as pill organizers, alarms and mobile applications have notable limitations.

METHODOLOGY

conceptual design: Based on the requirements gathered, the conceptual design of the system is developed. This includes defining the overall system architecture, selecting appropriate hardware and software components, and the outlining the basic functionalities of the system.

Prototyping: A prototype of the system is built to test and validate key features and functionalities. This allows for early feedback from stakeholders and iterative refinement of the design.

User testing: The prototype is tested with real users including Alzheimer's patients and caregivers, to evaluate usability, effectiveness and user satisfaction. Feedback gathered during user testing is used to identify areas foe improvement and inform design refinement.

Implementation: Once the design is finalized based on user feedback, the system is implemented according to the specifications outlined in the designed phase. This involves coding the firmware for the Arduino Uno microcontroller, configuring hardware components, and integrating the software components.

Testing and validation: The implemented system undergoes rigorous testing to ensure functionality, reliability and the performance. This includes unit testing of the individual components, integration testing of the system as a whole and validation testing with real-word scenarios

Deployment and monitoring: Upon successful testing and validation, the system is deployed in real-word setting, such as homes or care facilities continuous monitoring and feedback gathering are conducted to identify any issues or areas for improvements post deployments.

Maintenance and updates: Regular maintenance and updates are performed to address any issues, enhance functionality, and incorporate new feature based on user feedback and evolving requirements.

BLOCK DIAGRAM:

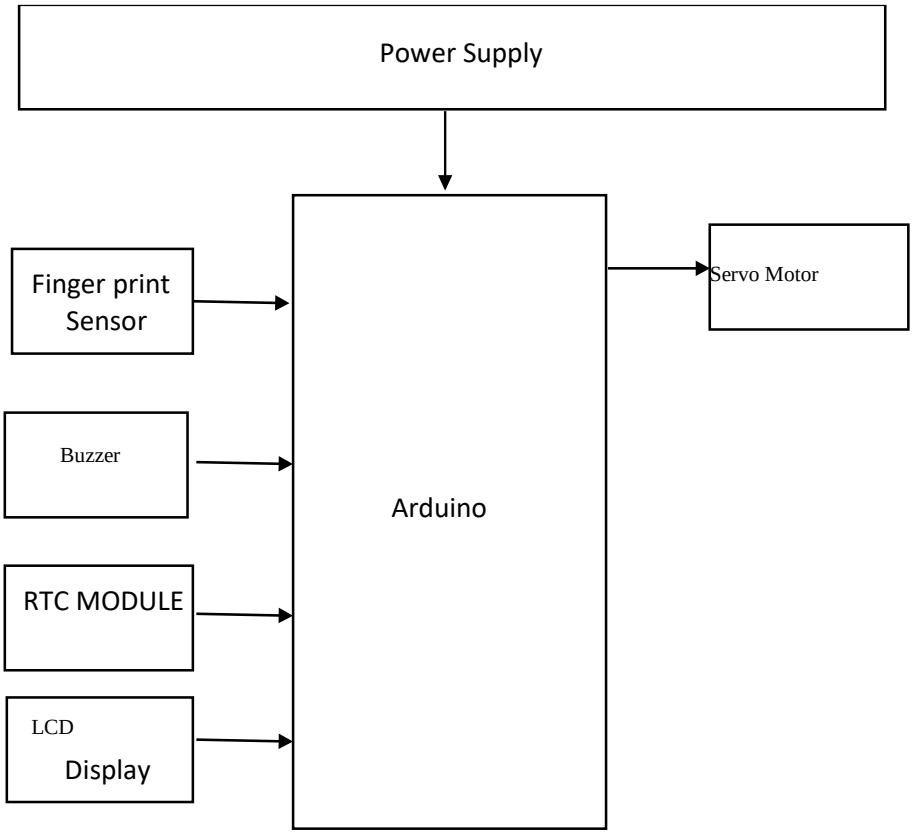

Fig: System architecture

COMPONENT REQUIRED

A. Arduino Uno: Arduino Uno is a microcontroller board, developed by Arduino.cc, based on the Atmega328 microcontroller and is marked as the first Arduino board developed (UNO means "one" in Italian). The software used for writing, compiling and uploading code to Arduino boards is called Arduino IDE (Integrated development environment), which is freed to develop from Arduino official site.

B. Finger print sensor: Finger print recognition system work by examining a finger pressed against a smooth surface. The fingers ridges and valleys are scanned, and series of distinct points, where ridges and valleys end or meet, are called minutiae. This minutiae are the points the finger print recognition system uses for comparision In order to identify an individual, the valleys and ridges are used which are found on the surface tips of a human finger.

C. RTC module: A real time clock, or RTC, is digital clock with a primary function to keep accurate track of time even when a power supply is turned off or a device is placed in low power mode. RTC are comprised of a controller, oscillator, and an embedded quartz crystal resonator. They are engineered as all in one device to provide better performance than discrete components, simplify integration in new designs, accelerate time to market. Functions of the RTC are called resistors.

D. Serial interface adaptor: A serial interface adapter is a hardware device that enables communication between a computers and serial device, such as printers or modems. It converts the serial data from this device into a format that the computer can understand, facilitating data transfer and interaction between the device. This adapters are commonly used to connect legacy serial device to modern computers that may not have negative serial port.

E. Servo Motor: A servo motor different from a stepper motor while both kinds of motors can control speed and position, they are both designed for very different applications. Stepper motors are built in steps allowing the controller to signal how many steps to make, however, this only works if

the controllers knows the position of the output shaft. Because of this stepper motor is powered up the controller moves the output shaft to a known position or until it activates an end limits switch.

F. Buzzer: In this tutorial, we will learn how to use buzzer with Arduino it is also called Piezo buzzer. The Arduino isn't built to be a synthesizer, but it can certainly produced sound through an output device such as a speaker or Piezo. Sound is produced by vibrating air. A sound as a distinctive pitch (frequency) if vibration repeats regularly. The Arduino can create sound by driving a loud speaker or Piezo device, converting electronic device into speaker pulse which vibrate the air.

G. LCD display: Electronic display device that operates by applying a varying electric voltage to a layer of liquid crystal display, there by inducing changes in it's optical properties. LCD's are commonly used for portable electronic games, as view finders for digital cameras and camcorders, in flat-panel television.

COMPLETE PROJECT

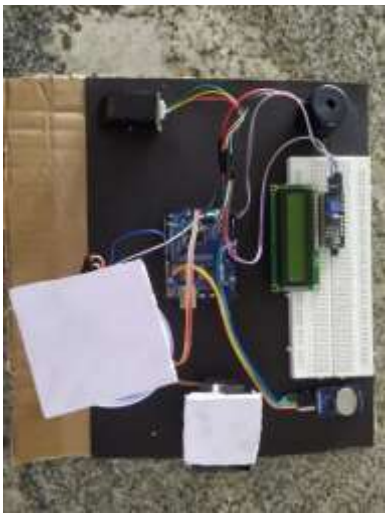

Fig: Project Photo

RESULTS

After completing the implementation of the design by connecting the components, the system has been tested for different conditions. The design worked successfully as per required. To check the performance of the system; we have also observed the different parameters conditions in the websites through internet from different location. We can also smoothly control the system through the website. Hence, the IOT based smart crop monitoring and control techniques

CONCLUSION AND FUTURE SCOPE

In conclusion, the development of smart medication remainder system tailored for Alzheimer patients represents a significant advancement in healthcare technology. By addressing the unique challenges of medication management in this population, the system offers numerous benefits, including medication adherence, enhanced patient safety, and reduced caregivers burden while the current system provides a solid foundation for medication management, there is ample opportunity for future enhancement innovations to further enhance its capabilities and impact which ongoing research, collaboration and technological advancement, the future looks promising for improving the health and well-being of Alzheimer's patients through innovative digital health solutions.

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