



SAMBHRAM
INSTITUTE OF TECHNOLOGY

Department of Electronics and Communication Engineering

*Project Phase 1 - Presentation
On*

“IoT Based Healthcare Monitoring System”

By

Milind Mishra [1ST18EC018]

Mritunjay Sharma [1ST18EC021]

Paveen Kumar M.B [1ST18EC025]

Shubham Kumar [1ST18EC041]

**Under the guidance of,
Dr. Shreesha Kalkoor,
Associate Professor, Dept. of ECE, SaIT.**

Contents

- Introduction
- Objectives
- Literature Survey
- Block Diagram
- Methodology
- Hardware and Software Requirements
- Advantages and Applications
- Expected Results
- References

Introduction

- Healthcare is given the extreme importance now a- days by each country with the advent of the novel corona virus.
- So in this aspect, an IoT based health monitoring system as a solution for such an epidemic.
- Internet of Things (IoT) is the new revolution of internet which is the growing research area especially in the health care.
- With the increase in use of wearable sensors and the smart phones, these remote health care monitoring has evolved in such a pace.
- IoT monitoring of health helps in preventing the spread of disease as well as to get a proper diagnosis of the state of health, even if the doctor is at far distance.
- In this project, a portable physiological checking framework is displayed, which can continuously screen the patient's heartbeat, temperature and other basic parameters of the room.
- We proposed a nonstop checking and control instrument to screen the patient condition and store the patient information's in server utilising Wi-Fi Module (ESP8266) based remote correspondence.
- A remote health monitoring system using IoT is proposed where the authorised personal can access these data stored using an IoT platform (ThinkSpeak) and based on these values received, the diseases can be diagnosed by the doctors from a distance.

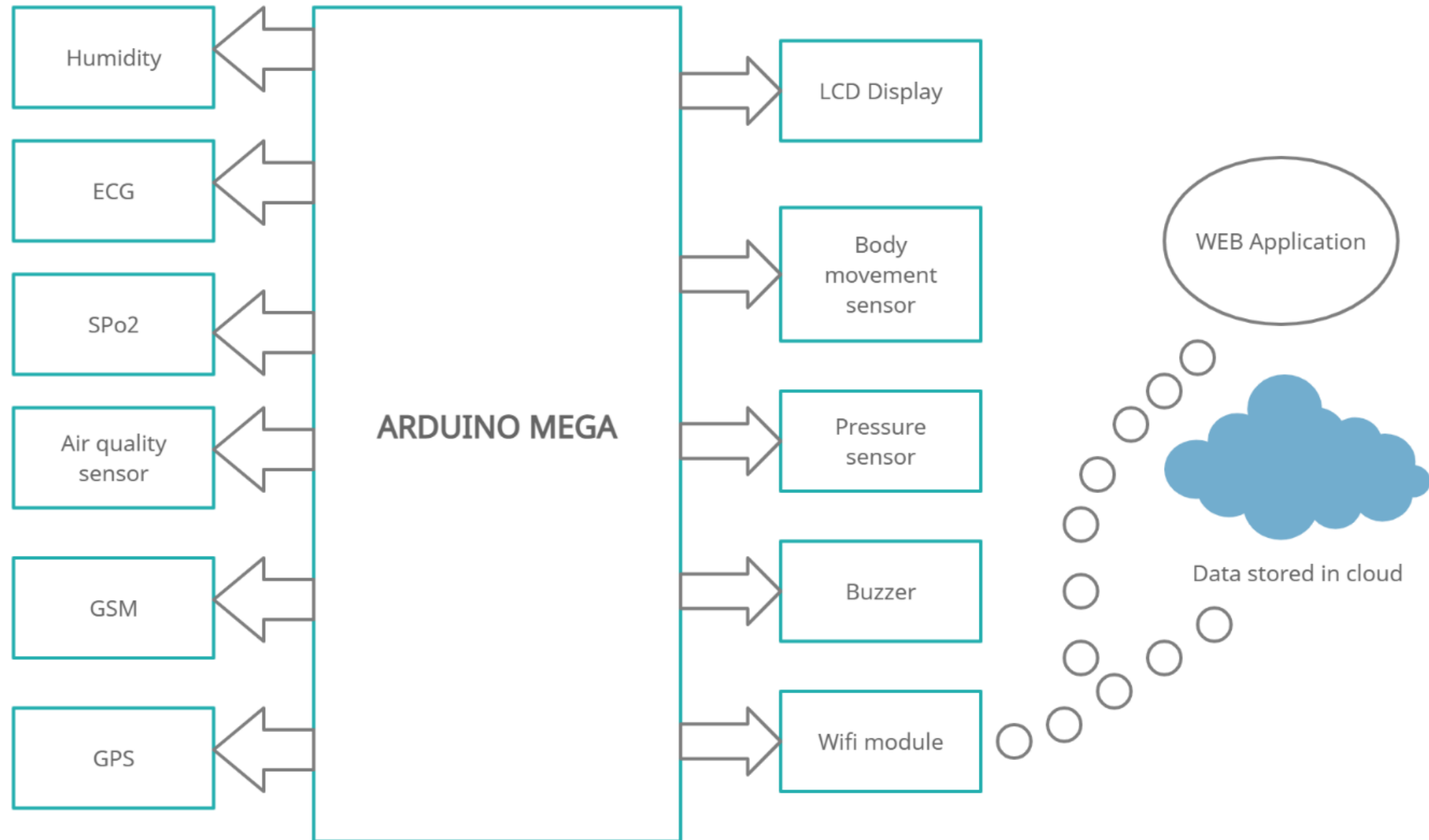
Objectives

- To design and implementation of a smart patient health tracking system that uses Sensors to track patient health and uses internet to inform their loved ones in case of any issues.
- To develop monitoring systems is to reduce health care costs by reducing physical office visits, hospitalisations, and diagnostic testing procedure.
- Each of our bodies utilises temperature and also pulse acknowledging to pursue understanding wellbeing. The sensors are linked to a microcontroller to track the status which is thus interfaced to a LCD screen and additionally remote association with the capacity to alert the concerned.
- If framework finds any sudden changes in understanding heart beat or body temperature, the framework can consequently alarm the client about the patient's status over IOT and furthermore indicates subtle elements of pulse and temperature of patient live on the web.

Literature Survey

- Kathikamani R : He had designed monitoring system for patients using wireless technology. The data collected are stored on the cloud and are analysed.
- Trivedi : He suggested a mobile device regulated Arduino-based health parameter surveillance framework. The collected sensor data are analog and sent it to the board of Arduino Uno. By the integrated analog to digital converter, the recorded analog values are converted into digital data. Bluetooth transmitted the physical qualities to the developed device. The Bluetooth device used a module not covering a decent area.
- Oresko : He mentioned a completely upset sensing system for smartphones, identifying a tool that's is developed to be the identical given sufficient time and monetary resources. The developed prototype only tracked coronary rhythm in real-time, didn't track surrender time, and may not detect any upset.
- Gregoskietal : He Introduced a smartphone-based heart monitoring system. The system used a mobile light and camera to trace finger blood flow and calculated blood flow-based rate of flow. The developed system described an integrated device that wirelessly transmitted a person's pulse to a computer, empowering people to check their sign by merely viewing at their phones instead using hands on every occasion.

Block Diagram



Methodology

- The Arduino Sketch running over the device implements the various functionalities of the health care system.
- Functions like reading sensor data and converting them into strings
- Passing them to the IoT platform (ThingSpeak)
- Displaying measured data on hosted IoT platform (ThingSpeak)

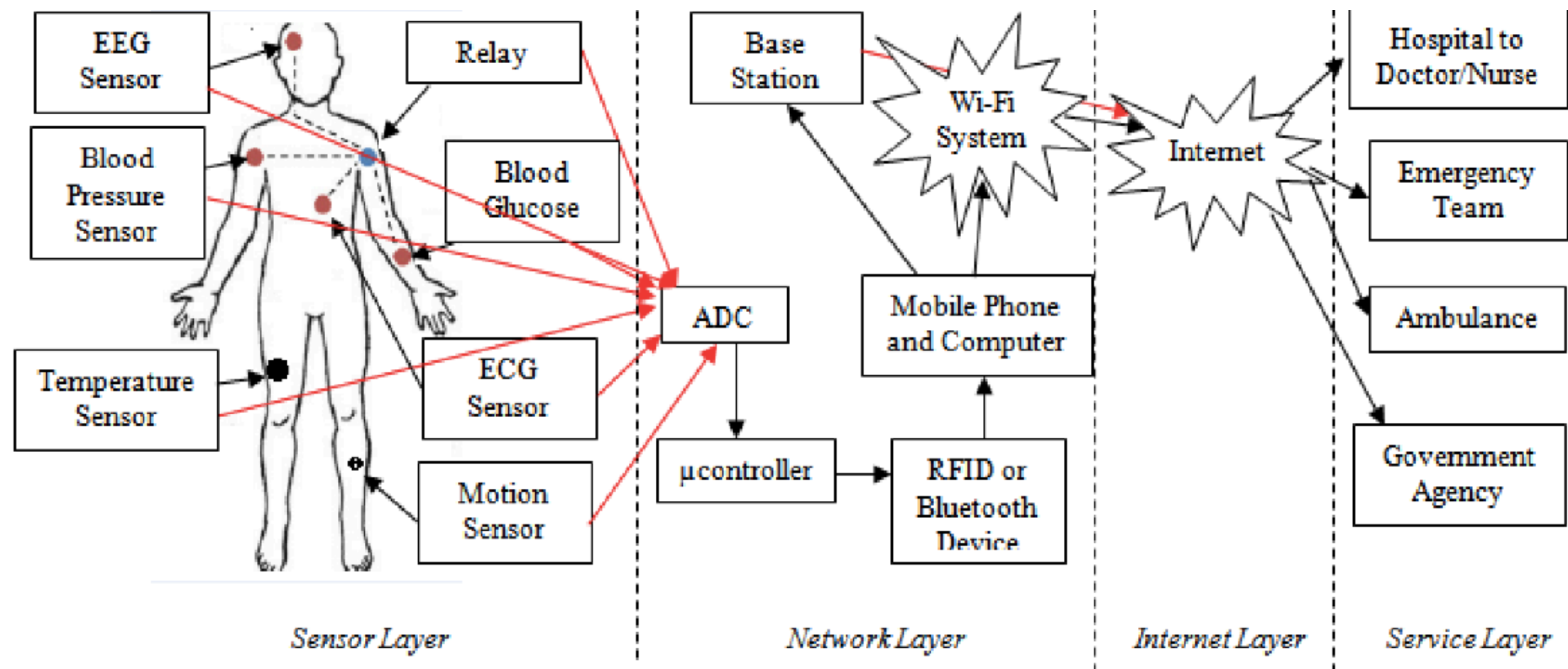


Fig. : IoT based Healthcare Monitoring Schematics

Hardware & Software Requirements

- ESP 32
- ECG sensor
- Temperature sensor
- Heartbeat sensor
- Pulse oxygen level
- Gps
- Gsm module
- Humidity sensor
- Jumper wires
- Blynk app
- Arduino
- Embedded C

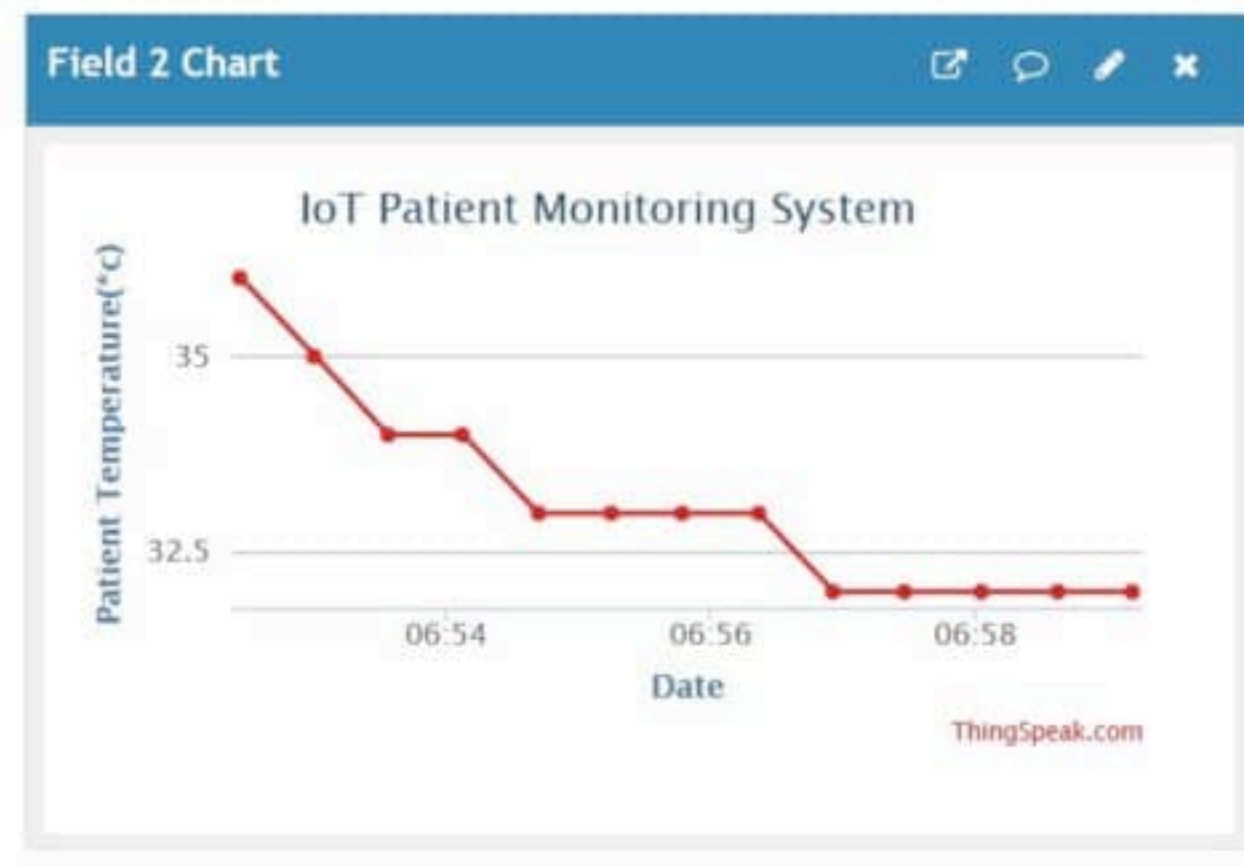
Advantages

- Portable pocket sized health monitoring system.
- Real time health care data logging.
- Easily accessible ThinkSpeak E-Portal, which can be accessed anywhere around the world.
- Simple hardware, highly user friendly targeting a large age group.

Applications

- Remote areas which are inaccessible to health care facilities, if educated can take care of their health with this tool.
- Health monitoring purposes for analytics.
- Targeting a fail proof system as the health care data can be accessed remotely from the end-user as well as government's side.
- Helps in securing life of the survivors who lost their loved ones in these hard times.

Expected Results



References

- K. E. Campbell, D. E. Oliver, E. H. Shortliffe, "The Unified Medical Language System: toward a collaborative approach for solving terminologic problems", Journal of American Medical Informatics Association, vol. 5, pp. 12-6, Jan-Feb 1998.
- A. Gangemi, D. M. Pisanelli, G. Steve, "An overview of the ONIONS project: applying ontologies to the integration of medical terminologies", Data & Knowledge Engineering, vol. 31, pp. 183-220, 1999.
- A. Jovic, M. Prcela, D. Gamberger, "Ontologies in Medical Knowledge Representation", Proc. of Int. Conf Information Technology Interfaces, pp. 535-540, 2007.
- "“The Process Specification Language,” International Standards Organization ISO TC 184/SC5 Meeting, Paris", J.J. Michel, A.F. Cutting-Decelle, April 2004.
- D. M. Pisanelli, A. Gangemi, G. Steve, "A Medical ontology library that integrates the UMLS Metathesaurus™", Lecture Notes In Computer Science; Vol. 1620 Proc. of Joint European Conf on Artificial Intelligence in Medicine and Medical Decision Making, pp. 239-248, 1999.