# INTERNATIONAL JOURNAL OF INNOVATIVE RESEARCH

## IN COMPUTER & COMMUNICATION ENGINEERING

**Impact Factor: 7.542**

INTERNATIONAL STANDARD SERIAL NUMBER INDIA

# Smart Shoe for Amnesia Patients

**Mr.V. Nagaraj[1], B. Bisharath Khan[2], M. Parameshwaran[3], Stephy V.Sam[4]**

Assistant Professor, Department of ECE, Knowledge Institute of Technology, Salem, Tamil Nadu, India

Students, Department of ECE, Knowledge Institute of Technology, Salem, Tamil Nadu, India, [2-4]

**ABSTRACT:** New clever technology more and more plays a key role in healthcare and well-being, contributing to the improvement of healthcare principles. The standards beneath embedded and internet of things has been increasing within the near destiny with many new technologies added to it. these technologies allow a comprehensive view of an individual's motion and mobility, potentially helping healthful dwelling. The simple topic is to apply in actual time through connecting and transferring facts to humans via the wi-fi community. The objective of this undertaking is to reveal the amnesia-affected person's health circumstance and if ordinary, alert message and stay region will be dispatched to the registered cell range and the image captured might be sent to the mail that is connected to it. In brief, the venture concentrates on the concept of monitoring and preserving the amnesia patient situation and if determined any abnormalities then helping to the nearby clinic. smart footwear may be expected to function pervasive wearable computing structures that allow progressive answers and offerings for the promotion of healthful residing and the transformation of healthcare.

**KEYWORDS:** Amnesia Patient, Smart shoe, Health Tracking, Alert Notification, IoT.

## I. INTRODUCTION

Life is not common for all people. Defects do affect their daily phases of life, one such defect that affect people is the amnesia. Amnesia results in memory loss and person facing such defect find it difficult when a partial or full amount of memory is lost. People can't be available at all times with them in such a case we need to help with our possible method in such a way we have introduced this device which helps the people who are affected with amnesia. The objective is by making them independent in their own way and on the other hand monitoring their physical state through the components connected and through the information sent wirelessly. This proposed model is also applicable for women safety and elderly people to safeguard them as well. This concept is indeedafasterwayoflettingthe information to be reached and also taking better care of health by maintaining continuous track of their heartbeat rate. Together with it the positions and live location are captured by the components connected to it and hence provides a better way of health care monetization and an easy way of safeguarding the amnesia patients and providing a relief to their family as well.

## II. LITERATURE SURVEY

Owing to recent technological advancements in consumer electronics and growing costs of healthcare, a vision of connected e-health system has been evolving which constitute Personal Health Devices (PHD). Incorporation of Information and Communication Technology (ICT) in healthcare industry explored the possibilities to optimize the supply of all the available medical resources and provide reliable, efficient healthcare services to the aged people and patients with physical disabilities and chronic illness. This paper throws some light upon the existing techniques that are available for Healthcare application used in Internet of Things (IoT). The proposed work is to design and develop a Mobile-IoT based healthcare system which is featured with Pattern Matching Algorithm by gathering patient's data from various PHD sensors and timely alert the caretaker as well as doctor by sending messages. It monitors the patient's physiological parameters remotely and diagnoses the diseases as early as possible. This can be implemented in wearable alert system through Wireless Body Area Network (WBAN). The network overhead and suitability of the proposed solution for different environments is presented which includes the integration of different wireless interfaces with a cloud service.

## III. PROPOSED SYSTEM

Herethe working of this project at first it is carried out by heartbeat sensor and accelerometer sensor which will be continuously monitoring the patients pulse rate and their physical state. When the patient experiences an abnormal situation like losing consciousness or any other situation their heartbeat will increase, but their position will be normal which will be noted by the system and using

GSM an alert message will be send to the registered mobile number.

In some situation when the patient feels dizziness and faint then the heartbeat will increase, and position will be changed in this situation the patients need help so the GSM will send the alert message to the registered mobile number and Pi camera linked to the Raspberry PI will take pictures in front of them and send it to the registered email Id. Using Node MCU we can track the patient's location.By using this system, we can monitor amnesia patients and keep them safe and healthy.
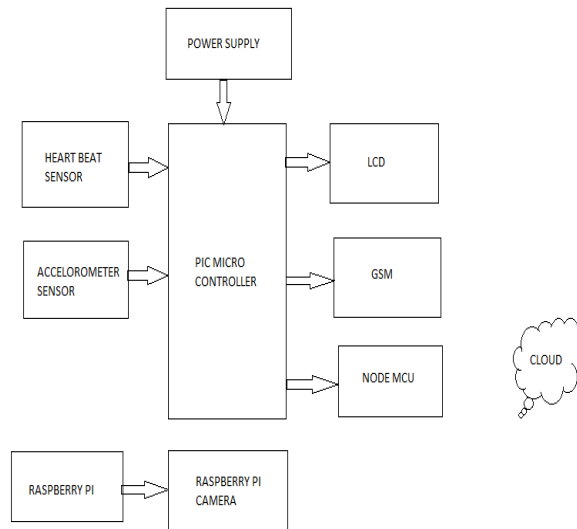


Fig 1: Block Diagram for Smart shoe for Amnesia Patients.

## IV. DESCRIPTION OF COMPONENTS

### 1. Raspberry Pi

The Raspberry Pi is a credit card sized single board computer developed in the UK by the Raspberry Pi Foundation with the intention of promoting the teaching of basic computer science in schools. The Raspberry Pi is manufacturedin two board configurations.

The Raspberry Pi has a Broadcom BCM2835 system on a chip (SoC), which includes an ARM1176JZFS 700 MHz processor, Video Core IV GPU, and was originally shipped with 256 megabytes of RAM, later upgraded to 512 MB. It does not include a built-in hard disk or solid-state drive, but it uses an SD card for booting and persistent storage. The Foundation provides Debian and Arch Linux ARM distributions for download. Tools are available for Python as the main programming language.

### 2. LCD Display

An LCD is a flat-panel display or other electronically modulated optical device that uses the light modulating properties of liquid crystals. Liquid crystals do not emit light directly, instead using a backlight or reflector to produce images in colour or monochrome. The options for selecting automatic and manual mode of the meter is made available on this LCD Display. Once the raspberry pi reads the data, the LCD will display the user data.

### 3. Power supply unit

The circuit needs two different voltages, +5V & +12V, to work. These dual voltages are supplied by this specially designed power supply. The power supply, unsung hero of every electronic circuit, plays very important role in smooth running of the connected circuit. The main object of this 'power supply' is, as the name itself implies, to deliver the required amount of stabilized and pure power to the circuit. The stabilization of DC output is achieved by using the three terminal voltage regulator IC. This regulator IC comes in two flavours: 78xx for positive voltage output and 79xx for negative voltage output is as shown in Fig.3.12. For example, 7812 gives +12V output and 7912 gives -12V stabilized output. These regulator ICs have in-built short-circuit.

### 4.     PI Camera

The Raspberry Pi Camera module is connected to CSI port of raspberry pi.
This is an 8 Megapixel night vision camera used to broadcast a live stream to webpage through raspberry pi, thus, we can watch live stream of our home from anywhere in the world. This camera is attached to servo motors to rotate (right, left, up and down) the camera.

### 5.Node MCU

NodeMCU is an open-source LUA based firmware developed for the ESP8266 wifi chip. By exploring functionality with the ESP8266 chip, NodeMCU firmware comes with the ESP8266 Development board/kit i.e. NodeMCU Development board.SinceNodeMCU is an open-source platform, its hardware design is open for edit/modify/build.

### 6.     PICMicrocontroller (16F877A):

PIC is a family of modified Harvard architecture microcontrollers made by Microchip Technology, derived from the PIC1650 originally developed by General Instrument's Microelectronics Division. The name PIC initially referred to "Peripheral Interface Controller" now it is "PIC" only.

PICs are popular with both industrial developers and hobbyists alike due to their low cost, wide availability, large user base, extensive collection of application notes, availability of low cost or free development tools, and serial programming (andre-programming with flash memory) capability.

### 7.  Heartbeat Sensor:

The **heartbeat sensor** is based on the principle of photoplethysmography. It measures the change in volume of blood through any organ of the body which causes a change in the light intensity through that organ (avascular region).

### 8.     Accelerometer Sensor (ADXL335):

The ADXL335 is a small, thin, low power, complete 3-axis accel-erometer with signal conditioned voltage outputs. The product measures acceleration with a minimum full-scale range of ±3 g. It can measure the static acceleration of gravity in tilt-sensing applications, as well as dynamic acceleration resulting from motion, shock, or vibration.

### 9.     GSM Modem

A GSM modem is a specialized type of modem which accepts a SIM card, and operates over a subscription to a mobile operator, just like a mobile phone. From the mobile operator perspective, a GSM modem looks just like a mobile phone.
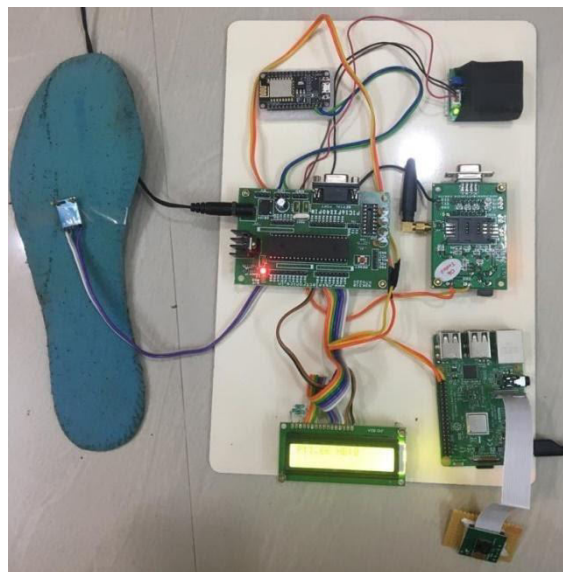
## V. RESULT



Fig 2:Experimental setup of Smart shoe for amnesia patients.

Warning Position and HB
abnormal check u r mail
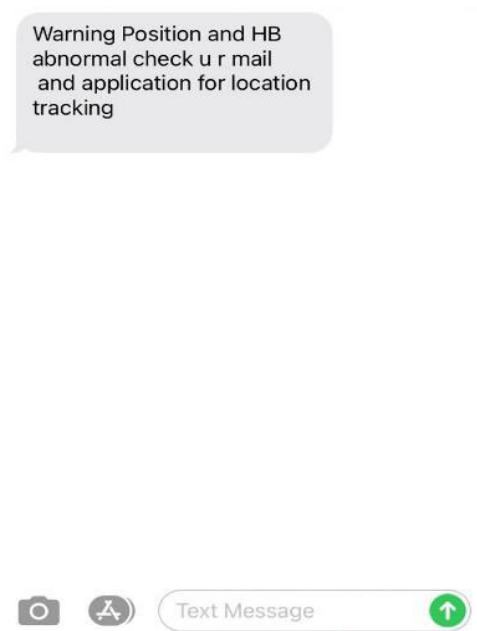and application for location
tracking

Text Message

Fig 3:output display indicating about the Patients heartbeat and position.
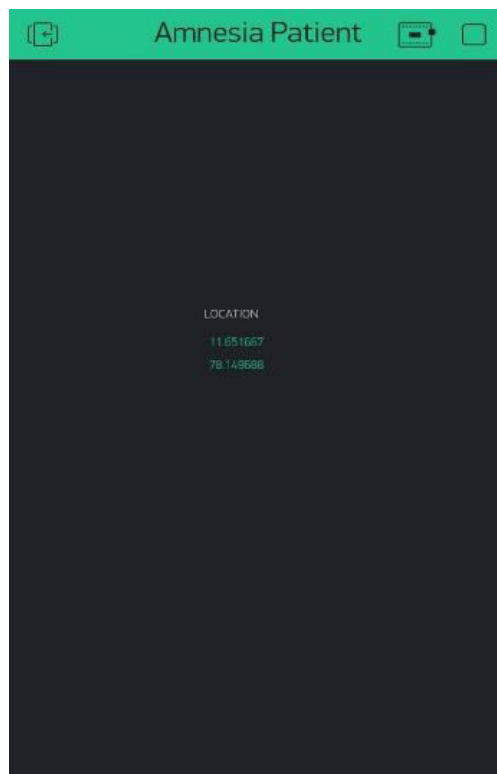
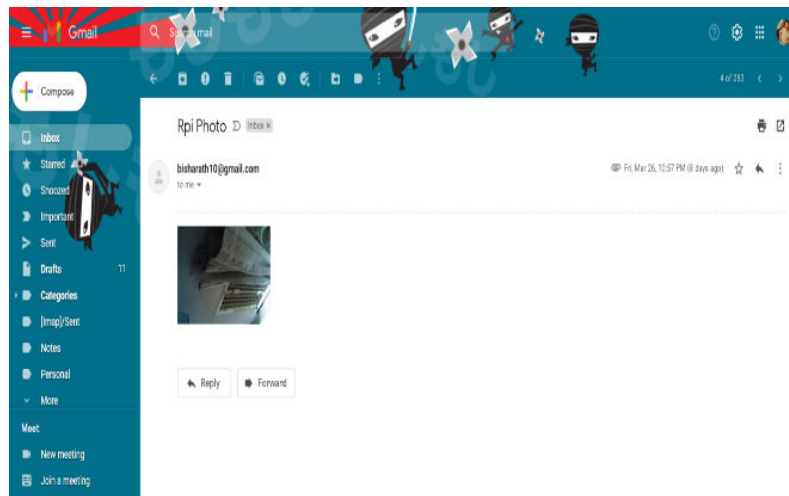Fig 4:output displaying Location inIoT using Blynk App.

Fig 5: output for displaying images in E-mailusing Raspberry PI.

## VI. CONCLUSION

This developed device is used to monitor the amnesia patients and keep them under surveillance if found abnormal. The idea of applying it in the form of shoe will be the best method to track their current location together with the heart beat rate and their physical state. As Iot is at its emerging level this project be definitely useful and hence provide a solution to the problems faced by the amnesia patients.

## REFERENCES

[1] Sharma, V., Tomar, Y., &Vydeki, D. (2019). Smart Shoe for Women Safety. 2019 IEEE 10th International Conference on Awareness Science and Technology (iCAST). doi:10.1109/icawst.2019.8923204

[2] Hwang, P.-Y., Chou, C.-C., Fang, W.-C., & Hwang, C.-M. (2016). Smart shoes design with embedded monitoring electronics system for healthcare and fitness applications. 2016 IEEE International Conference on Consumer Electronics-Taiwan (ICCE-TW). doi:10.1109/icce-tw.2016.7520983

[3] Pasluosta, C.F.; Gaßner, H.; Winkler, J.; Klucken, J.; Eskofier, B.M. An emerging era in the management of parkinson's disease: Wearable technologies and the internet of things. Biomed. Health Inform. 2015,19, 9.

[4] Yang, S.; Li, Q. Inertial sensor-based methods in walking speed estimation: A systematic review.Sensors 2012,12, 6102–6116. [CrossRef] [PubMed]

[7] Puke S., Suzuki T., Nakayama K., Tanaka H., Minami S. Blood pressure estimation from pulse wave velocity measured on the chest; Proceedings of the 2013 35th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC); Osaka, Japan. 3–7 July 2013; pp. 6107–6110.

[8] Smith CN, Jeneson A, Frascino JC, et al. : When recognition memory is independent of hippocampal function. *Proc Natl AcadSci U S A.* 2014;111(27):9935–40.10.1073/pnas.1409878111

[9] Rosenbaum RS, Priselac S, Köhler S, et al. : Remote spatial memory in an amnesic person with extensive bilateral hippocampal lesions. *Nat Neurosci.* 2000;3(10):1044–8. 10.1038/79867

[10] Kumar Keshamoni, SabbaniHemanth, "Smart Gas Level Monitoring, Booking and Gas Leakage Detector over IoT", IEEE 7th International Advance Computing Conference,2017.

[11] ChaitaliBagwe, VidyaGhadi, VinayshriNaik, Neha Kunte, "IOT Based Gas Leakage Detection System with Database Logging, Prediction and Smart Alerting- Review",March 2018.

[12] Pong Ke Xin, Low Chang Weng, "Using LabVIEW, we successfullydeveloped a GPS data acquisition System to useas a learning platform to understand the data structure of a GPS module", NI-Case study

[13] Wang, Z.; Yang, Z.; Dong, T. A review of wearable technologies for elderly care that can accurately track indoor position, recognize physical activitiesand monitor vital signs in real time.Sensors 2017,17, 341.

# INTERNATIONAL JOURNAL
# OF INNOVATIVE RESEARCH

## IN COMPUTER & COMMUNICATION ENGINEERING