INTERIM PROGRESS REPORT
REVIEW II

on

Smart IoT Enabled Intelligent - Health Medicine Device

Submitted by

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Semester – VIII
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Under the supervision of

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Abstract

It is helpful to people who are forgetful about taking medicine in proper time, especially the elderly people. It can be used by nurses as well to avoid confusion in medication of patients. The time required to take medicine isn't printed on medicine box or can't be read by people. Sometimes they forget to take pills. This project deals with particular time a patient needs to take pills which can be changed according to his requirement. It even ensures that right medicine at appropriate time is taken,moreover it monitors the number of pills left, if few,order of pill is sent by system to medical shop automatically through GSM.

Objective

To maintain the schedule of taking medicine. Helpful for old person who have weak memory. Helpful for nurses who get confused in giving medicine to her number of patient. It maintains the regularity of taking medicine and due to this patient can complete course of medicine easily.Single device can handle number of patient that is why it is cheap and best.

Introduction

People rely on their medications to keep them healthy, but complex medication schedules can lead to mistakes like missing doses, taking incorrect amounts, or taking medicines at the wrong times. These mistakes could lead to unnecessary doctor or hospital visits, illness and even death. Hence there is a need to design a Medication Dispensing Device that can help people to take medication on schedule.This would prevent unplanned hospital or doctor visits related to incorrect medication use.

Literature Survey

[1] An IoT-Aware Architecture for Smart Healthcare Systems. Luca Catarinucci, Danilo De Donno, Luca Mainetti ,IEEE Internet of Things Journal, Nov 2015.

[Automatic monitoring and tracking of patients, personnel, and biomedical devices with a complex network infrastructure relying on a CoAP, 6LoWPAN, and REST paradigms has been implemented]

[2] A Health-IoT Platform Based on the Integration of Intelligent Packaging, Unobtrusive Bio-Sensor and Intelligent Medicine Box. Geng Yang, Li Xie, Matti Mäntysalo, Xiaolin Zhou, IEEE Transactions on Industrial Informatics, November 2014.

[IoT-based intelligent home-centric healthcare platform connects smart sensors

attached to human body for physiological monitoring and pharmaceutical packaging for daily medication.]

[3] An Electronic Pillbox for Continuous Monitoring of Medication Adherence, Tamara. L. Hayes John, M. Hunt, Andre Adami, and Jeffrey A. Kaye, IEEE Engineering in Medicine and Biology Society, October 2012.

["Magic Medicine Cabinet" which used RFID to identify which medications were taken out of a cabinet, face recognition to identify who approached the device, and a broadband connection to be able to provide an integrated "situation health portal". Thus, users were required to use the medicine cabinet and to store all medications in separate bottles that could be RFID tagged.]

[4] Reconfigurable Smart Factory for Drug Packing in Healthcare Industry 4.0.

Jiafu Wan, Shenglong Tang, Di Li, Muhammad Imran, Chunhua Zhang, Chengliang Liu, Zhibo Pang, IEEE Transactions on Industrial Informatics Oct 2018.

[Industry 4.0, which exploits Cyber-Physical Systems (CPS) and represents digital transformation of manufacturing, is deeply affecting healthcare as well as other traditional production sector. To accommodate the increasing demand of agility, flexibility, and low cost in healthcare sector, a data-driven reconfigurable production mode of Smart Factory for pharmaceutical manufacturing is proposed in this paper. The architecture of the Smart Factory is consisted of three primary layers, namely perception layer, deployment layer and executing layer.]

[5] Effective ways to use Internet of Things in the field of medical and smart

health care. Kaleem Ullah ; Munam Ali Shah ; Sijing Zhang , IEEE Xplore 23 May 2016.

[The Internet of Things (IoT) is a new concept that allows users to connect various sensors and smart devices to collect real-time data from the environment. However, it has been observed that a comprehensive platform is still missing in the e-Health and mHealth architectures to use smartphone sensors to sense and transmit important data related to a patient's health.In this paper contribution is made twofold. Firstly, the existing literature has been critically evaluated, which discusses the effective ways to deploy IoT in the field of medical and smart health care. Secondly, we propose a new semantic model for patients' e-Health. The proposed model named as 'k-Healthcare' makes use of 4 layers; the sensor layer, the network layer, the Internet

layer and the services layer. All layers cooperate with each other effectively and efficiently to provide a platform for accessing patients' health data using smart phones.]

System Model Description

BLOCK DIAGRAM:
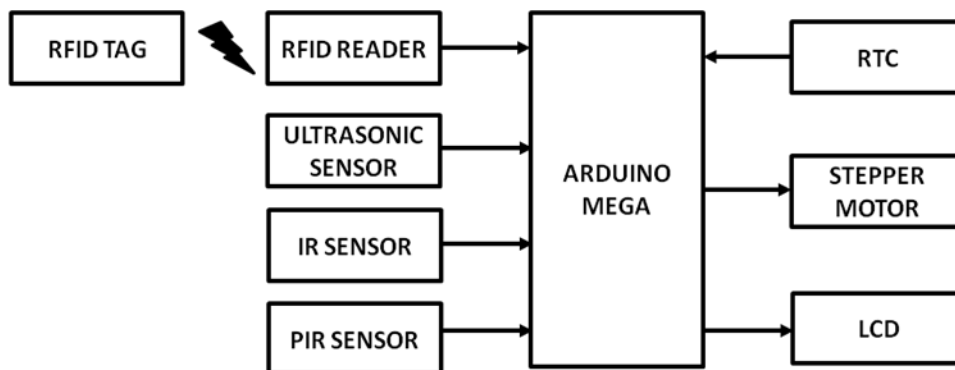
Arduino Mega2560 : Used to serve for multiple ports required.

RFID : To avoid misplacement of pills.

Ultrasonic Sensor : To measure the empty space of tray.

IR Sensor : To count the number of pills in tray.

PIR Sensor : To achieve accuracy of count of pills.

RTC : To indicate time range in which medicine should be taken.

Stepper Motor : To automatically open tray on completion of its rotation in specified time.

LCD : To display alert of time and confirmation of medicine taken.

Methodology

Hardware/Software Description

- **Arduino mega**:- The Arduino MEGA 2560 has 54 digital I/O pins, 16 analog inputs and a larger space for your sketch it is the recommended board for 3D printers and robotics projects.
- **Ultrasonic sensor**:- ultrasonic transducers are used in systems which evaluate targets by interpreting the reflected signals.
- **IR sensor**:- An IR sensor can measure the heat of an object as well as detects the motion.
- **Real time clocks (RTC)**:- The DS1307 real time clock (RTC) IC is an 8 pin device. The clock/calendar provides seconds, minutes, hours, day, date, month and year qualified data.

- **LCD**:-An 16×2 character LCD is an electronic display module which uses liquid crystal to produce a visible image.
- **NodeMCU**:-NodeMCU is an open source IoT platform. It includes firmware which runs on the ESP8266 Wi-Fi SoC from Espressif Systems, and hardware which is based on the ESP-12 module.
- **RFID**:-A radio frequency identification reader (RFID reader) is a device used to gather information from an RFID tag, which is used to track individual objects.

IV.Statement of Contribution

This interim progress report, and the activities that it has entailed, has been a collaborative effort amongst the group members.

Prateek Srivastava

- Created ABET for first review.
- Tested the components required for the project.

Arpana Arland

- Created ABET for first review.
- Tested the components required for the project.

Nitin Asthana

- Created PPT for first review.
- Working on Arduino mega coding.

Sushant Kumar

- Created PPT for first review.
- Created interim progress report.

Declaration

Arpana Arland   :
Sushant Kumar   :

Nitin Asthana   :

Prateek Srivastava   :

Project Supervisor
Mrs. V. Padmajothi   :

Project Coordinator
Mrs. J. Subhashini   :

Declaration

Arpana Arland   :
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INTERIM PROGRESS REPORT EVALUATION RUBRICS

Project Title   :   Smart IoT Enabled Intelligent - Health Medicine Device

Project Code   :   15EC496L

Team Members :

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Nitin Asthana(RA1511004010717)
Sushant Kumar(RA1511004010713)

Name of Evaluator   :   _____

Rubrics	Possible Points	Assigned Marks
• ABET Project Proposal Form	5	
Aim & Objectives, Abstract • Objective complete and well-written • provides all necessary background principles for the experiment	5	
Content-Introduction, Literature review, System model Technically correct; Contain in-depth and complete details of the project	10	

Language (Word Choice, Grammar) • Sentences are complete and grammatical. They flow together easily • Words are chosen for their precise meaning. • Engineering terms and jargon are used correctly; No misspelled words. **Numerical Usage and Illustrations** • All figures, graphs, charts, and drawings are accurate, consistent with the text, and of good quality. They enhance understanding of the text. • All items are labelled and referred to in the text. • All equations are clear, accurate, and labelled. • All variables are defined and units specified. • Discussion about the equation development and use is stated.	5	
Total Points	25	

Date: Signature of the Project Guide