

ACKNOWLEDGEMENT

Any achievement, be it scholastic or otherwise, does not depend solely on the individual efforts but on the guidance, encouragement and cooperation of intellectuals, elders and friends.

Firstly, we are very grateful to this esteemed institution “Jyothy Institute of Technology” for providing us an opportunity to complete our project.

Our deep and profound gratitude to our guide **Mr. Abhishek K**, Asst. Prof. for his keen interest and boundless encouragement in preparing this work.

We would like to thank **Dr. Harshvardhan Tiwari**, Associate prof. and head of the Dept., Information science and Engineering for providing us an opportunity and for his valuable support.

We express our sincere thanks to **Dr. Gopalakrishna K**, Principal, JIT for providing us with adequate facilities to undertake this project.

We would, also like to take this opportunity to express our gratitude for the support and guidance extended to us by the faculty members of the Information Science and Engineering Department.

Finally, we would thank all our friends who have helped us directly or indirectly in this project.

ABSTRACT

In modern society, it is been observed that people are busy with their materialistic aspects rather than their health. These kinds of situations are most common with the elderly person due to their age factor, with blind people due to their inefficiency and the common people with their busy schedule. It is also mandatory that there should be a person to look after the old ones just for giving the tablets in time. Often they forget to take their medications or might take overdose of it, resulting in further health deterioration. Due to this practice which might leads to a slow recovery and in some situation it might leads to an life threat.

There are also some apps available which monitors people to take the tablets in time, but the old ones or blind ones can't or they may don't know how to handle these applications in mobiles. There is already a kit available to help these problem called as tablet kit but, it will be difficult for blind people to handle it.

Thus in order to overcome this problem we are developing an Smart Medicine Kit which resolves the problem of forgetting, by intimating at particular time and showing them the correct amount of medicine to take. It is mainly related to a machine performing task in the absence of human beings and also facilitates for the storage of pills. The respective updating messages will be sent to the authorized person or the caretaker. It is a mixture of software and hardware residue that will be useful for people of any age, but it is specially concentrated to aged ones who might not be aware of their pill routines. This venture comprises of raspberry pi, IR Sensors, Mike, Speaker, Motor drivers, Motors, IOT Module, GSM Module, and 24x7 Power supply.

Table of Contents

| Chapter No. | Description | Page No. |
|------------------------|---|---------------------|
| 1 | Chapter 1: INTRODUCTION | 1 |
| | 1.1 Objective | 2 |
| | 1.2 Motivation | 2 |
| 2 | Chapter 2: LITERATURE SURVEY | 3 |
| 3 | Chapter 3: SYSTEM ANALYSIS | 10 |
| | 3.1 Problem Statement | 10 |
| | 3.2 Existing System | 10 |
| | 3.3 Proposed System | 11 |
| | 3.4 Advantages of Proposed System | 12 |
| | 3.5 Summary | 13 |
| 4 | Chapter 4: SYSTEM REQUIREMENTS SPECIFICATION | 14 |
| | 4.1 Functional Requirements | 14 |
| | 4.2 Non Functional Requirements | 15 |
| | 4.3 Hardware Requirements | 16 |
| | 4.3.1 Raspberry Pi 3 | 17 |
| | 4.3.2 Micro SD card | 19 |
| | 4.3.3 IR Sensors | 20 |
| | 4.3.4 Mike and Speaker | 23 |
| | 4.3.4.1 Mike | 23 |
| | 4.3.4.2 Speaker | 24 |
| | 4.3.5 Ethernet or LAN | 25 |
| | 4.3.6 Motor Driver | 26 |
| | 4.3.7 DC Motors | 28 |
| | 4.3.8 Power Bank | 30 |
| | 4.3.9 Power Supply | 30 |

| | | |
|----|---|----|
| | 4.4 Software Requirements | 31 |
| | 4.4.1 Rasbian OS | 31 |
| | 4.4.2 Python | 32 |
| 5 | Chapter 5: SYSTEM DESIGN | 34 |
| | 5.1 Block Diagram | 34 |
| | 5.2 Data Flow Diagram | 35 |
| 6 | Chapter 6: IMPLEMENTATION | 36 |
| | 6.1 Working | 38 |
| 7 | Chapter 7: CHALLENGES FACED | 39 |
| 8 | Chapter 8: SOFTWARE TESTING | 41 |
| | 8.1 Test Cases | 41 |
| | 8.2 Incremental Testing | 42 |
| 9 | Chapter 9: RESULT ANALYSIS | 43 |
| 10 | Chapter 10: CONCLUSION AND FUTURE WORK | 46 |
| | 10.1 Summary | 46 |
| | 10.2 Future Enhancements | 47 |
| 11 | REFERENCES | 48 |

Table of Figures

| Fig. No. | Description | Page No. |
|-----------------|---|-----------------|
| 1 | Raspberry Pi 3 model b+ | 17 |
| 2 | GPIO Pins of Raspberry Pi 3 model b+ | 18 |
| 3 | Micro SD card | 19 |
| 4 | IR Sensor | 20 |
| 5 | Schematic of IR Sensor | 21 |
| 6 | Circuit diagram of IR Sensor | 22 |
| 7 | An USB Web Camera | 23 |
| 8 | Web Cam Interface on Raspberry Pi | 24 |
| 9 | earphones | 24 |
| 10 | Ethernet or LAN Cable | 25 |
| 11 | motor driver | 26 |
| 12 | motor driver pins | 27 |
| 13 | Dc motor | 28 |
| 14 | Interfacing Raspberry Pi with Dc motor | 28 |
| 15 | DC Motor Raspberry pi Interfacing | 29 |
| 16 | Power bank | 30 |
| 17 | Power supply | 30 |
| 18 | Raspbian Desktop | 31 |
| 19 | Python | 32 |
| 20 | Block Diagram of Medicine Kit | 34 |
| 21 | Flow chart of Medicine Kit Process | 35 |
| 22 | Medicine Dispenser Kit | 43 |
| 23 | Medicine Dispenser Kit of respective schedule | 44 |
| 24 | The output that we listen in earphone | 45 |
| 25 | The intimating message sent to the caretaker | 45 |
| 26 | The Image Sensing | 47 |

