ELECTRONIC VISITS IN PRIMARY CARE: MODELING, ANALYSIS, AND SCHEDULING POLICIES

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I.   ABSTRACT

Patient waits have been a long-standing concern in health care. Waits occur throughout the continuum of care and are built into and budgeted for within day-to-day operations. Scheduling in primary care is challenging because of the diversity of patient cases (acute versus chronic), mix of appointments (pre-scheduled versus same-day), and uncertain time spent with providers and non-provider staff (nurses/medical assistants). In this paper, we present an empirically driven stochastic integer programming model that schedules and sequences patient appointments during a work day session. The objective is to minimize a weighted measure of provider idle time and patient wait time. Key model features include: an empirically based classification scheme to accommodate different chronic and acute conditions seen in a primary care practice; adequate coordination of patient time with a nurse and a provider; and strategies for introducing slack in the schedule to counter the effects of variability in service time with providers and nurses.

***Keywords**:- Microcontroller, GSM, RTC, EEPROM, LCD etc.*

II.   INTRODUCTION

Electronic communication between patients and physicians ("e-visits") is a recent technological innovation in primary care that affords patients a low-cost alternative to physician office visits. VIPs visits have become complex for every one since life style of people become such that every minute is precious to them, to visit the person now a day's also time consuming process to avoid this problem we have implemented one system which can help the people to get the appointment on his or her mobile by using RTC (Real Time Clock) on first call basis.

The project constitute a microcontroller, GSM modem, RTC and an EEPROM, the visitor need to call the person number, by calling it will be receive by the GSM modem connected to controller, by using RTC we can able to get the

time and date of the call depending upon the call we will assign the token number to that number it will be store in EEPROM. And token number will be send to the person by a text message. At the same time it will be displayed in LCD

III.   BLOCK DIAGRAM
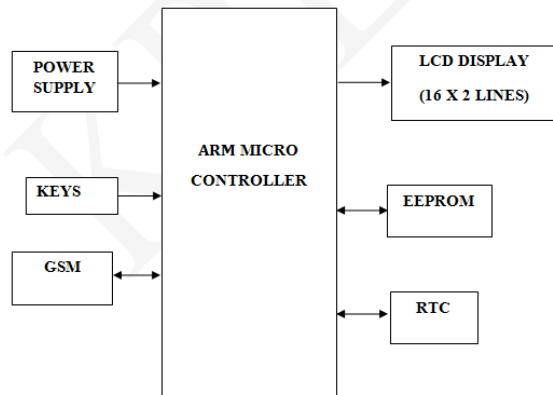
Fig(3.1) System Block Diagram

SYSTEM OVERVIEW

Power Supply:

This section is meant for supplying Power to all the sections mentioned above. It basically consists of a Transformer to step down the 230V ac to 9V ac followed by diodes. Here diodes are used to rectify the ac to dc. After rectification the obtained rippled dc is filtered using a capacitor Filter. A positive voltage regulator is used to regulate the obtained dc voltage.

Microcontroller:

This section forms the control unit of the whole project. This section basically consists of a Microcontroller with its associated circuitry like

Crystal with capacitors, Reset circuitry, Pull up resistors (if needed) and so on. The Microcontroller forms the heart of the project because it controls the devices being interfaced and communicates with the devices according to the program being written.

ARM is the abbreviation of Advanced RISC Machines, it is the name of a class of processors, and is the name of a kind technology too. The RISC instruction set, and related decode mechanism are much simpler than those of Complex Instruction Set Computer (CISC) designs.

LCD Display:

This section is basically meant to show up the status of the project. This project makes use of Liquid Crystal Display to display / prompt for necessary information.

GSM modem:

This section consists of a GSM modem. The modem will communicate with microcontroller using serial communication. The modem is interfaced to microcontroller using MAX 232, a serial driver. The Global System for Mobile Communications is a TDMA based digital wireless network technology that is used for communication between the cellular devices. GSM phones make use of a SIM card to identify the user's account.

EEPROM:

EEPROM (also written E2PROM and pronounced e-e-prom or simply e-squared), which stands for Electrically Erasable Programmable Read-Only Memory, is a type of non-volatile memory used in computers and other electronic devices to store small amounts of data that must be saved when power is removed, e.g., calibration tables or device configuration.

RTC:

Real time clock also referred as RTC is an important device or integrated circuit which will keep the track of current time. RTC is mainly used in computers, mainframes servers and embedded applications (mobile phone, tablets, organizers, PDA etc). The main function of the RTC is to keep the track of time of the device even though it is in off or turned off state. The best example is your computer, even though if you shut down your computer for really long time you can see the exact time on your desktop.

Keypad:

In electronics, a switch is an electrical component that can break an electrical circuit, interrupting the current or diverting it from one conductor to another. The most familiar form of switch is a manually operated electromechanical device with one or more sets of electrical contacts. Each set of contacts can be in one of two states: either 'closed' meaning the contacts

are touching and electricity can flow between them, or 'open', meaning the contacts are separated and non-conducting.
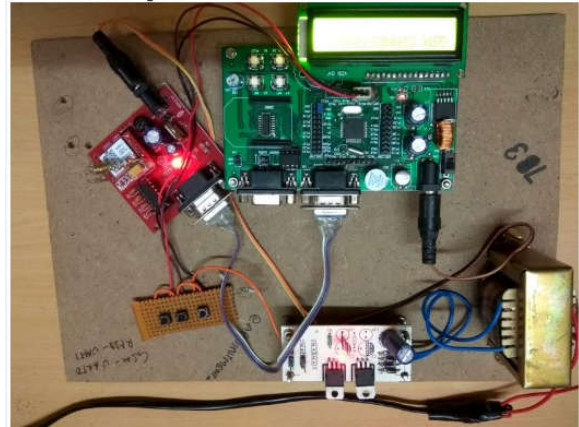
IV.   RESULTS

Fig (4.1): output on LCD

V.   CONCLUSION

To our knowledge, this is the first study to systematically review and identify interventions designed to reduce wait times for primary care appointments. Our findings suggest that open access scheduling and other patient-centered interventions may reduce wait times for primary care appointments. Our review may inform policy makers and family healthcare providers about interventions that are effective in offering timely access to primary healthcare.

VI.   REFERENCES

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