

VOICE ANNOUNCER & MEDICINE INJECTOR FOR COMA PATIENTS

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Abstract : Modern medical science using latest bio-medical instruments has made dramatic progress in prolonging life by overcoming disease. This project work falls under wireless biomedical device and is designed with ATMELE controller, which is able to monitor the temperature, heart beat rate (number of beats) of a patient continuously. To achieve this, wireless communication technology GSM is used in this project. In this project work, for the demonstration purpose two important features are designed i.e., patient's body temperature and heartbeat. The system is designed for an individual patient where the above mentioned parameters are read through the microcontroller and will be transmitting the information if any parameter goes abnormal through the GSM module to the concern mobile number defined in the controller program. For this the controller is interfaced with the GSM modem to transmit a message in the form of SMS to the authorized mobile number along with the parameter details. By replying a SMS to the GSM modem, automatically medicine injector will be activated and injection will be given in case of emergency. In addition to this, a voice chip will announce if any of the parameter goes abnormal or the injunction is given through the speaker.

Index Terms – Medicine Injector, Voice Announcer, Unmanned monitoring of coma patients, Unmanned health monitoring.

I. INTRODUCTION

This project work is designed for “Health monitoring and Controlling System with Announcement” describes the design and development aspects. Since it is a prototype module and for study purpose the basic concept is proven here, it cannot be used for real applications.

1. The heartbeat rate sensor and temperature sensor are connected to the patient and the same information is transmitted to the authorized mobile through GSM modem. The concept of measuring heartbeat is aimed to monitor the blood flow through finger tips and for this purpose the index-finger must be placed between the IR LED and IR sensor. The sensor used of temperature monitoring is LM35.
2. The computed temperature and heartbeat are displayed on the 16X2 LCD which is updated every one minute.
3. GSM is used to send and receive messages to the concern mobile number of the doctor. Based on the reply, the controller decides if the injection is to be given or not.

II. LITERATURE REVIEW

In this busy and competitive world we cannot monitor our elders (aged people) and patients continuously even though we have so much of love towards them. By using advancements in present technologies we are developing this project in order to implement the same even in the absence of human. In the existing model, the user has to press the respective button to get his service, and then appropriate medical course at appropriate timing.

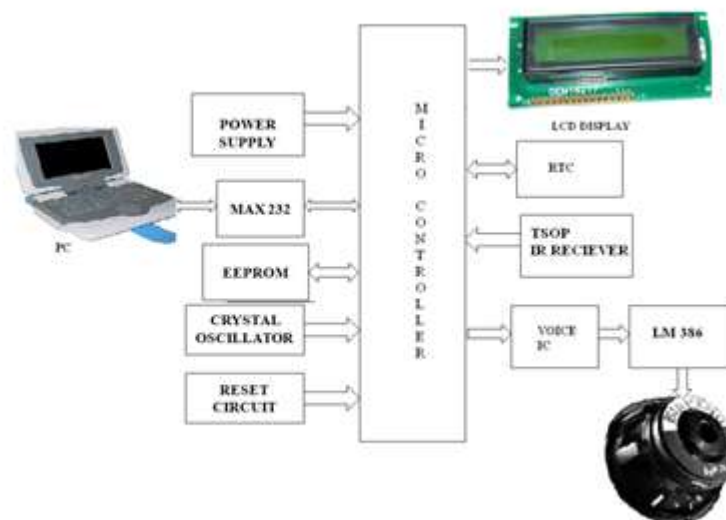


Fig. 1 Voice guider and Medicine Remainder For old age people (block diagram)

There may be chances that they remember to take the pills at regular times but forget the pill which had to be taken at that particular time. This is a big problem and it is also difficult to doctors to monitor patients always. In present days, in the hospitals, it is not easy and available service to employ a nurse to a single patient exclusively. To avoid these problems, it can remind the patient about the intake of the medicines at regular time intervals and also sends the information to the doctor about the patient if the temperature or heartbeat exceeds the normal set point. This project is designed mainly for patients and old aged people.

III. PROPOSED WORK

Patient monitoring is very important for a doctor to know every detail of the patient, so by using that information, doctor can give proper treatment to the patient. But when it comes to the case of a Coma Patient, it is very important to monitor every now and then. But it is impossible for someone to monitor patient continuously, so we are using two different sensors to monitor the heartbeat and temperature.

When these two parameters are observed abnormal, i.e., when the temperature and heartbeat are not in the specified range (normal), then a message will be sent to the doctor indicating what is abnormal through GSM and when it is not in the exceptional range, doctor will reply using some instruction (say) '@ON'. GSM receives that message and as GSM is interfaced with the microcontroller, it will start dc motor and hence the injection is injected into the saline which will be connected to the patient.

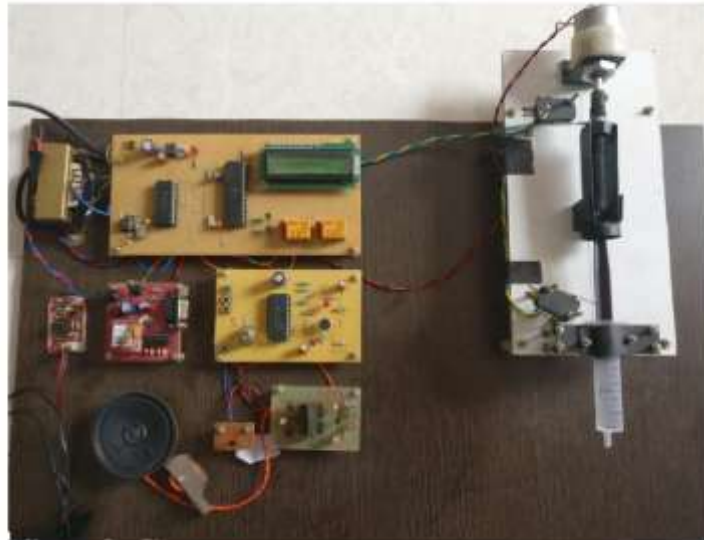


Fig. 2 Voice Announcer and Medicine Injector for Coma Patients (construction)

As shown in the fig.2, a microcontroller is interfaced with a GSM SIM900, heartbeat sensor, temperature sensor (LM35), Voice recorder cum playback chip, DC motor, LCD (16X2).

- The temperature is given to ADC and hence converted to digital and the same is given as input to microcontroller along with the heartbeat.
- Voice recorder cum playback chip is connected at the output pin of the microcontroller and the output is given to a speaker and connected to the people who can monitor from the room itself.
- When it is abnormal and the doctor sends an instruction to switch on the injection mechanism and give the medicine, the DC motor is switched ON.
- The rotatory motion of the DC motor is converted into linear motion using screw-rod method. This mechanism is switched on using the relay circuits. It is controlled using limit switches which are connected at the starting and ending position of the injection, as the other end of the screw-rod is connected to the injection. This injection is connected to the saline bottle continuously.

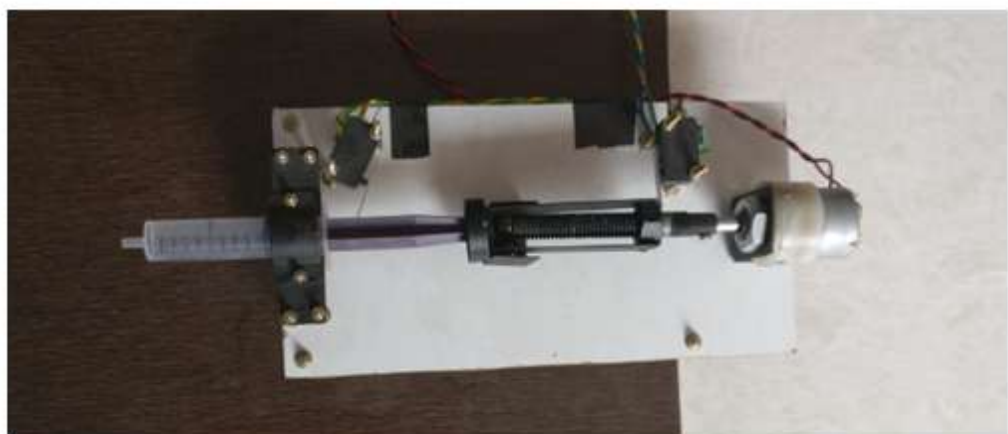


Fig.3 Construction of Injection mechanism

IV. ADVANTAGES OF PROPOSED DESIGN

- ❖ It is enough to check the patient only once a day, until and unless it is an emergency.
- ❖ There is no need of a person or doctor to be next to the patient all the time.
- ❖ The announcement is used to make the people monitor from room itself.
- ❖ The medicine can be given within few minutes in case of emergency.
- ❖ We can implement the same when a number of medicines are needed to be given at fixed time every day.

V. CONCLUSION

This project is completed successfully and the results are found satisfactory. Since it is a prototype module, it has been thoroughly revised taking in to consideration the developments in technology and introduction of new and improved methods of medical instruments for proper diagnosis. The hardware used in this project work were bulky, when this prototype module converted into engineering model, all bulky components can be accommodated into a single chip and a sleek, portable, good looking module can be made.

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