

# ATM Based Automated Medical Machine (AMM)

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**Abstract**— This project is designed a new system which is similar to an ATM machine where any person can consult any doctor at any time through real time server. This paper is developed to provide medical services particularly for the rural and urban areas where, the medical facilities are not easily available. Automated Medical Machine (AMM) consists of Biomedical sensors, Radio Frequency Identifier (RFID) reader, PC with web camera, Medicine dispatcher Heartbeat, Body temperature, Height, Weight using appropriate sensors after swiping the RFID (Radio Frequency Identifier) card of the person in the smart card reader which is interfaced to microcontroller. After checking, the money for the particular test is debited from their bank account. This concept will be useful for the business people who were in long journey, and for rural people.

**Key words:** Automated Medical Machine (AMM), RFID (Radio Frequency Identifier), rural and urban areas, Smart Card

## I. INTRODUCTION

Rural hospitals are hardly worth mentioning. If this technique is implemented in hospital. It will provide drastic change in health care, patient and doctors. The machine stores essential and frequently used drugs with others medical supplies. These AMM's are placed at convenient places all around the city, and even highways and other difficult spots for easy access.

“Wireless Machine-to-Machine Healthcare Solution Using Android Mobile Devices in Global Networks” explains the real time health information can be collected continuously and a sensor based collected information can be maintained in the patient medical records effectively [1]. “Advancement of Low-cost Medicare System for the Measurement of Physiological Parameters of Human Body” describes the digital output of heartbeat can be measured by placing a between super bright red LED and light detector [2]. “A Smart Card Alliance Healthcare Council Publication” explains the contact card readers are commonly build into hospital and health care for powerful tool security, identification, as well as authorization [3], “Non-invasive blood glucose monitoring using near infrared spectroscopy” demonstrates NIR (Near Infra-Red) light is applied to one side of ear lobe receiver on the other side receives the attenuated light. This light signal then sampled and processed, wavelength of 1550nm [4].

At present while performing some test, the patient requires more time to get the result. But our proposed work completes the test within short period of time and it also includes audio and video conferencing.

## II. BLOCK DIAGRAM

Initially the patient details such as name, age, gender and etc., are saved in the system and a card named as RFID tag

is given to the patient, which consist of barcode in the card. If we show the card to the system it will display the registered value of the patient. It is connected to the biomedical sensor and the values are recorded. MAX232 act as a level convertor and it is given to the PC. DC motor is used to print the prescription for the patient. And the output is displayed in LCD.

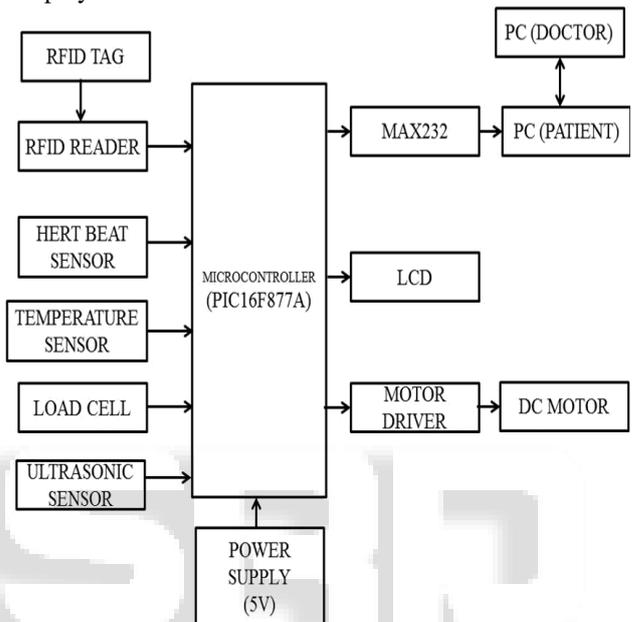


Fig. 1: Block Diagram

### A. Power Supply:

The KA78XX/KAXXA series of three terminal positive regulators are available in TO-220/D-PAK package and with the several fixed output voltage making them useful in a wide range of applications.

### B. RFID Reader:

This RFID Reader Module comes with two 54x85mm rectangle tags. This reader is used to read passive RFID transponder tags. The tags has a specific range that is within 10% of the given distance of each type of tag and this 10% is due to environmental conditions.

### C. Heartbeat Sensor:

The finger is placed between LED and LDR. The emitted light is sensed by LDR and the resistance value depends upon the amount of light emitted. The value is preset in the inverting input the amplified value is compared with preset value if any abnormal condition occurs it will generate an interrupt to the controller.

### D. Load Cell:

Load cell is a transducer that is used to convert a force into electrical signal. The most common use of this sensor is weighing machine. Based upon the weight we are giving, it will amplify and the greater output is provided.

**E. Temperature Sensor:**

LM35 is used as the temperature sensor, whose output voltage is linearly proportional to the Celsius temperature. A digital thermometer easily created by the LM35 temperature sensor and interfaced with the microcontroller.

**F. Ultrasonic Sensor:**

Ultrasonic sensors are non-intrusive in that they do not require physical contact with their target and can detect certain clear targets based on sensors. And their measurements are very sensitive to temperature.

**G. MAX232:**

MAX232 is an integrated circuit which converts signals from an RS232 serial port to signals suitable for use in TTL compatible digital logic circuits.

**H. Microcontroller:**

The PIC16F87XA devices have a 13-bit program counter capable of addressing 8K word. There are three memory blocks in each PIC16F87XA devices. The data memory and program memory have separate buses in this section.

**I. DC Motor:**

The electrical motors are continuous actuators that convert electrical energy into mechanical energy. DC motor is the most commonly used actuator for producing continuous movement and whose speed of rotation can easily be controlled.

**J. LCD:**

LCD is a display module and find a wide range of applications. These modules are preferred over seven segments and other multi segments LEDs. And the data registers stores data to be displayed on the LCD.

**V. REFERENCE**

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**III. RESULT**

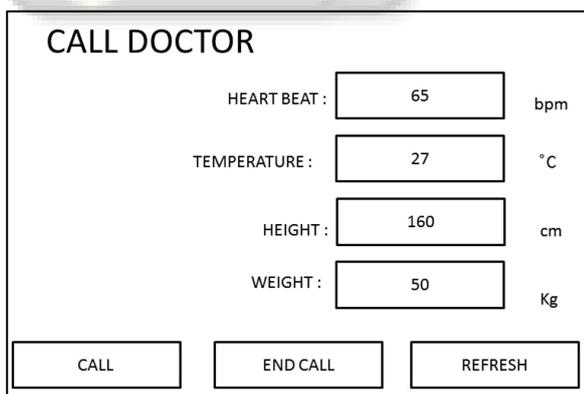


Fig. 2: Result of different parameters.

The result of different parameters can be easily display on kit.

**IV. CONCLUSION**

This paper represents the Automated Medical Machine (AMM) in which this technique does not require doctor help in the clinics. So it is not necessary to wait for the doctor to provide treatment for the patient. This technique will be widely used in the future.