

## **Occupational Exposure to Chlorides and Sulphates in Construction Materials: Health Risks and Preventive Strategies**

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### **ABSTRACT**

Degrees of social status are closely linked to health inequalities. Those with poor health tend to fall into poverty and the poor tend to have poor health. According to the World Health Organization, within countries those of lower social economic strata have the worst health outcomes. Health also appears to have a strong social component linking it to education and access to information. In terms of health, poverty includes low income, low education, social exclusion and environmental decay. The poor within most countries are trapped in a cycle in which poverty breeds ill health and ill health breeds' poverty. ATM Machine for Medicine is although not a new concept in its entirety, it could prove to be useful and hence important in developing countries like India where healthcare is almost critical.

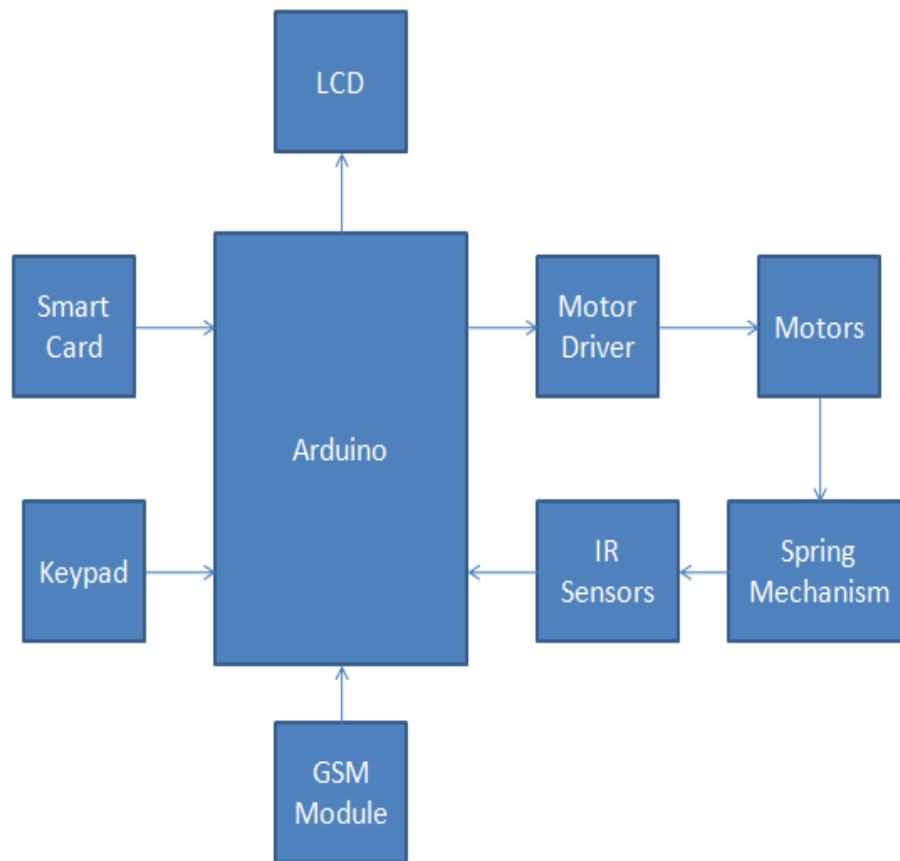
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### **INTRODUCTION**

According to the World Health Organization, within countries those of lower social economic strata have the worst health outcomes. The poor within most countries are trapped in a cycle in which poverty breeds ill health and ill health breeds' poverty. Two to three years back, the world health organization(WHO) stated that the Indians lack in poverty and low medicinal facilities which has resulted in lowering the rate of healthy people across the nation. This has motivated the scientific minds of the nation in order to change the image of India. In order to vanish the nuisance created by low health rate of Indians, many actions were taken across the nation which included decreasing prices of medicines, availability of medicines to poor people, generating medical stores at rural areas in the country and so on. Along with this, the digitalization for availability of medicines was a milestone. Hence, the first step as far as digitalization of medicinal facilities was concerned, was taken by one of the trusted medical institute from Delhi. The idea was so praised that all the nation came forward in order to enhance it at a large scale. ATM Machine for Medicine is although not a new concept in its entirety, but it could prove to be useful and hence important in developing countries like India where healthcare is almost critical. Hence all the people along with us inspired and started to develop at their level. This was the great motivation to me to undertake this task.

### **PROPOSED SYSTEM AND EQUIPMENTS**

**Block diagram**



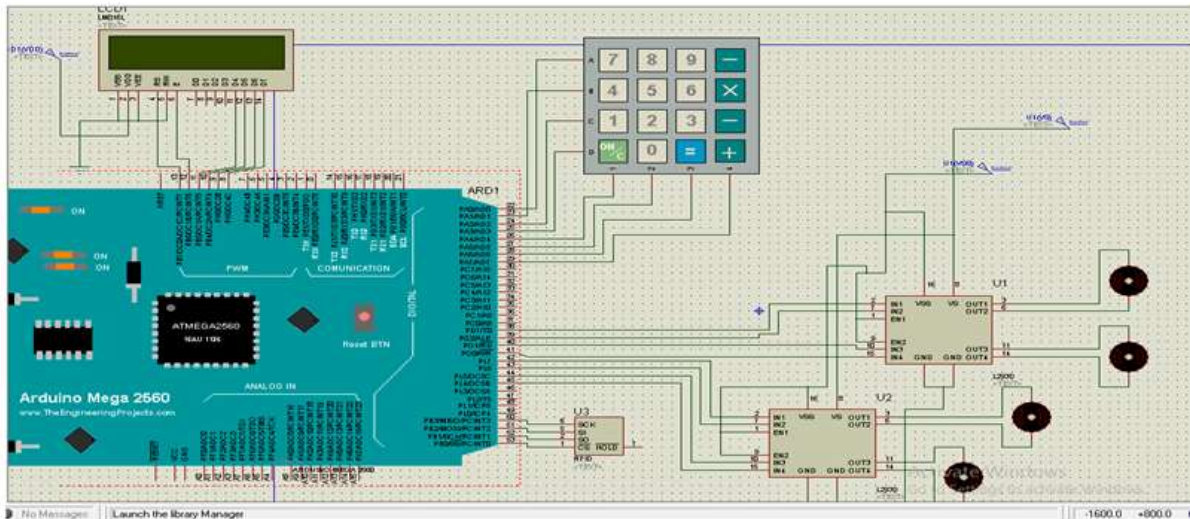
*Fig 1 :block diagram*

### **Equipments**

The generalised design includes the selection / design of following hardware modules:

- Arduino MEGA 2560
- RFID reader and tag
- DC geared motor
- L293D motor driver IC
- Keypad
- LCD

### **CIRCUITDIAGRAM**



*Fig 2 : circuit diagram of vending machine*

## WORKING

Our system starts with the user where he/she is initially provided a smart card which is nothing but a RFID tag. The tag has a specific EEPROM out of which 1Byte size from 0 to 255 is used by us. This memory is utilized by us in order to depict the balance of the users smart card. Which means that the max balance user will enjoy is 255 and a minimum of 1rs. Whenever a user inserts the card into the inserter, the RFID reader reads the inserted card through the field of mutual inductance. The smart card used is of active type which means it needs the external power to be supplied and it also transfers the power in the form of flux. The power flows through reader to tag but the data transfer is allowed in both the directions. Now there are either of the two cases viz:

- 1) Insufficient balance in the card
- 2) Sufficient balance in the card.

If the card has insufficient balance in it, the user is prohibited to carry on the further process. On the other hand, if the user has sufficient balance in it, the user is allowed to do the required task. Next to that, after inserting the card, the user is allowed to choose the required medicine from the keypad. Thus by selecting the medicine, the user is allowed to choose the quantity of the required medicine from the keypad. Once the medicine and quantity is chosen from the keypad, the user is able to withdraw the medicines through the spring mechanism of the motor. The medicine is derived to the user through the motor. The motor used is DC gear motor of 45rpm and 3kgcm torque. The project model has 4 motors which are drive through two motor driver IC's viz:L293D.Two motors are connected to a single IC. Thus by using two such IC's, 4 motors are derived. The balance cutting is done once the medicines are flown out of the spring mechanism. The prices of medicines are kept as 1,2,3 and 4rs respectively. If the medicine of particular rate is withdraw, then the corresponding balance is cut. The remaining balance will be automatically displayed on the LCD screen. In this way, it functions entirely.

## RESULTS AND CONCLUSION

### Result

We checked the IR sensor with different settings of threshold levels. When we set the exact delay to motor then and only then medicines can be delivered to user. Otherwise medicines couldn't be delivered irrespective of the keypad.

### Conclusion

Our proposed "VENDING MACHINE FOR MEDICINAL USE" is the advanced, reliable and robust version of today's generation.The proposed system also gives space, in terms of hardware and software, to add up custom applications to make the product even more user-friendly. Proposed system can be installed on larger scale by increasing number of medicines.Thus we successful build a "VENDING MACHINE FOR MEDICINAL USE" which can be used for general purpose usage.

### Applications

- Automated medical ATM system plays its major role in hospitals.
- Hostel areas
- Railway platforms
- Airports

- Rural areas
- Hospitals & Medical stores

#### **Advantages**

- Reduces time consumption.
- Implementation of this system reduces man power.
- 24 hours availability service.

#### **FUTURE SCOPE AND HURDLES**

As Result of this project the people would be able to access the ATM 24\*7. The ATM provides medicine for general symptoms like fever, High B.P, headache and sprain. This machine can be installed at bus stations, railway stations and streets of the city. Drugs can be made available in affordable rates. Each person accessing the machine would be given a unique ID using which the user can be identified.

Prospective customer survey / study has been planned in order to understand Indian users for such a machine. Block diagram would be detailed out for each block and module development would be started. Legal, medical and administrative aspects would be studied for feasibility study and further changes in design. Further hurdles would be funds, timely resource availability & formation of think-tank team.

#### **ACKNOWLEDGEMENTS**

We take much pride in presenting our project “**VENDING MACHINE FOR MEDICINAL USE**”.In our path if I do not mention the names of certain individuals, without whose assistance, our project would have been difficult undertaking indeed, then pardon me. The first and last is my guide/mentor **Prof. Dr. Mr. R. N. PATIL**. His contribution to this project came in all forms, as assisting in all the technical shortcomings, and further providing me with all the useful information regarding the hardware and software, required material and their details. It was certainly most heartwarming experience to see our teachers and guide the following student’s endeavors with such zeal, I am indeed thankful to him.

Finally I express my gratitude towards the people who directly or indirectly contributed to success of our maiden venture in to practical electronics.

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