GALGOTIAS COLLEGE OF ENGINEERING & TECHNOLOGY

MINI PROJECT POWERPOINT PRESENTATION

IOT BASED MEDICATION DISPENSING MACHINE FOR MONITORING AND HEALTHCARE ENHANCEMENT

PROJECT GUIDE :-
MANOJ SAINI SIR

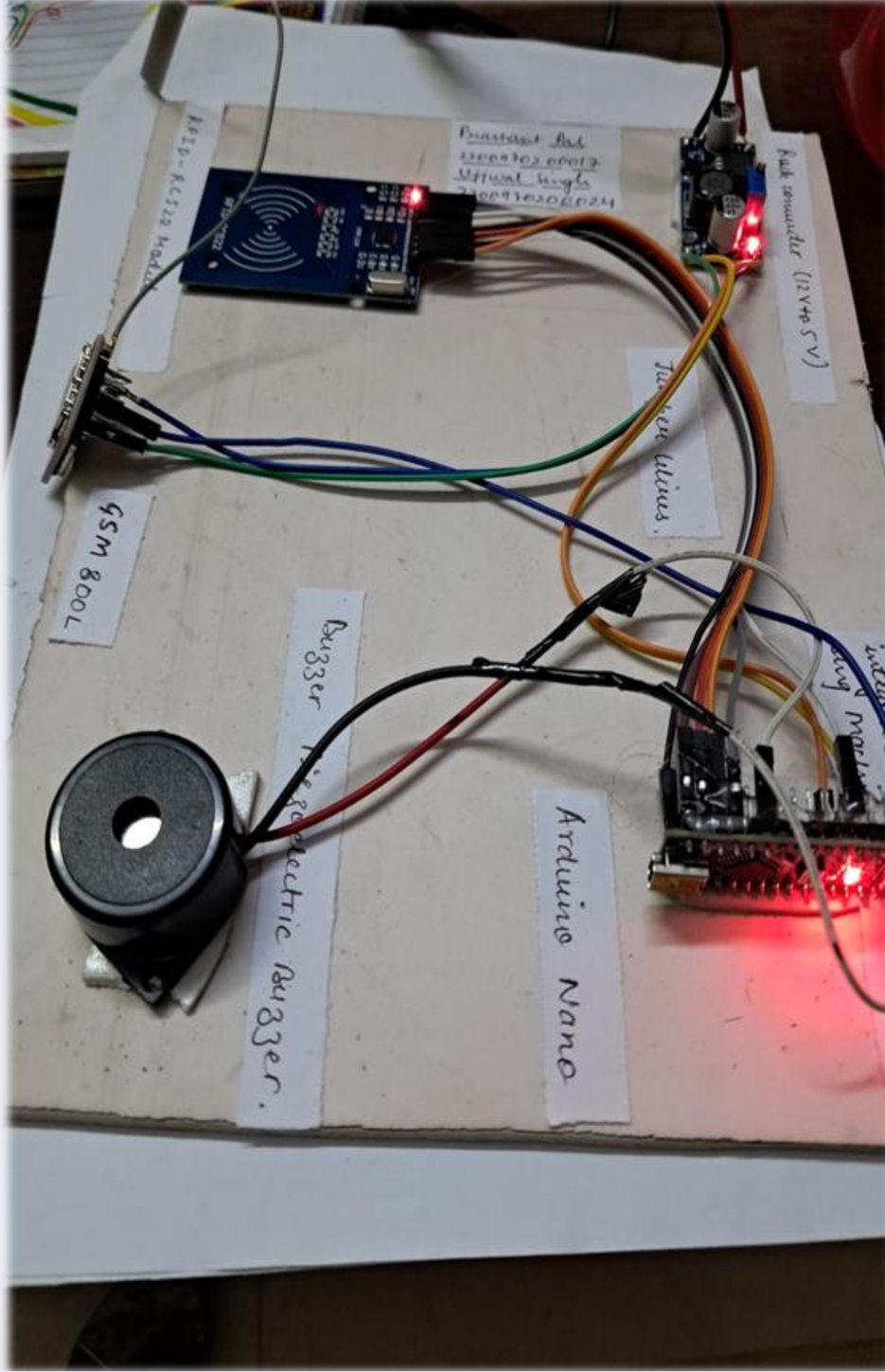
SUBMITTED BY :-
UJJWAL SINGH EE – 3rd YEAR V SEM (2200970200024)
PRASHANT PAL EE – 3rd YEAR V SEM (2200970200017)

TOPIC DISCUSSED IN THIS PPT

- INTRODUCTION
- COMPONENTS USED
- ADVANTAGES OF HEALTH ASSISSTANT
- MARKET GROWTH OF HEALTH ASSISTANT
- BLOCK DIAGRAM
- CIRCUIT DIAGRAM
- DETAILS ABOUT THE COMPONENTS
- PROJECT OUTCOMES
- CONCLUSION

INTRODUCTION

- The primary challenge in healthcare is ensuring that patients follow their prescribed medication regimens. Non-adherence can result in deteriorating health, increased medical costs, and unnecessary hospital visits.
- Chronic conditions, such as diabetes, hypertension, and heart disease, require patients to take medications regularly, and missing a dose can lead to severe consequences.
- This project addresses this challenge by designing and implementing an **IoT-based Medication Dispensing Machine** that automates the dispensing of medications based on a patient's schedule. It also monitors the patient's medication intake using **RFID technology**, and **GSM communication** to notify the patient regarding his/her medication schedule or when to take the medication.



COMPONENTS USED :-

1. ARDUINO NANO
2. GSM 800L
3. RFID-RC522 CARD READER MODULE
4. Adjustable 12V-5V Step-Down Voltage Regulator
5. BUZZER
6. ADAPTER 12V-1A
7. JUMPER WIRES

Advantages of Health Assistant

1. Personalized Health Monitoring
•Tracks vital signs like heart rate, blood pressure, and glucose levels.
•Offers customized recommendations based on individual health data.

2. 24/7 Accessibility
•Digital health assistants, like apps or virtual assistants, provide support anytime.
•Helpful in emergencies or when professional help isn't immediately available.

3. Improved Health Management
•Assists in managing chronic conditions (e.g., diabetes, hypertension).
•Reminds users to take medications, follow diets, or exercise regularly.

4. Convenience
•Saves time by reducing unnecessary clinic visits.
•Offers instant advice for minor health concerns.

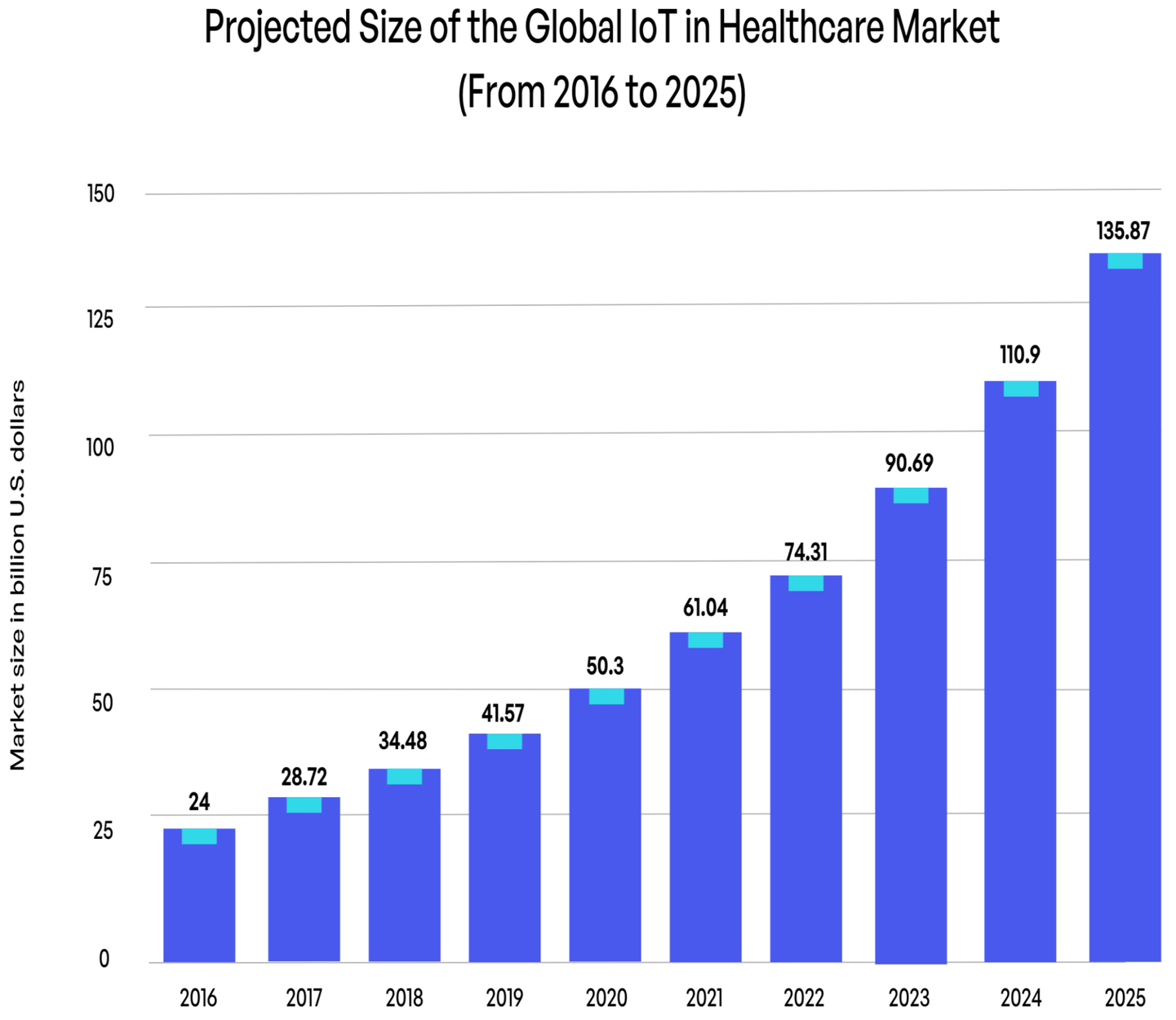
5. Early Detection of Health Issues
•Flags abnormal patterns or symptoms that may require medical attention.
•Encourages preventive care and timely interventions.

6. Educational Support
•Provides reliable health-related information.
•Helps users understand symptoms, treatments, or preventive measures.

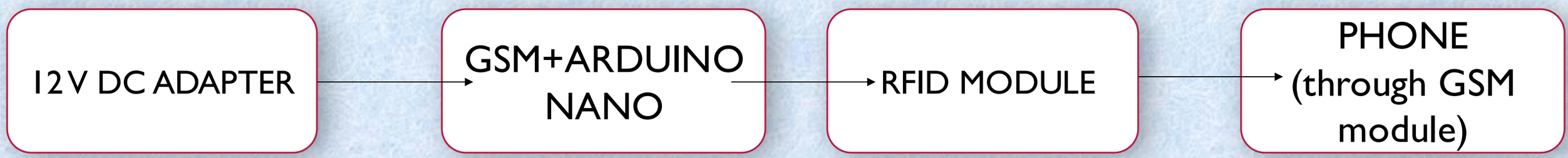
7. Mental Health Support
•Many health assistants include tools for stress management, mindfulness, or therapy recommendations.
•Helps in tracking and improving mental well-being.

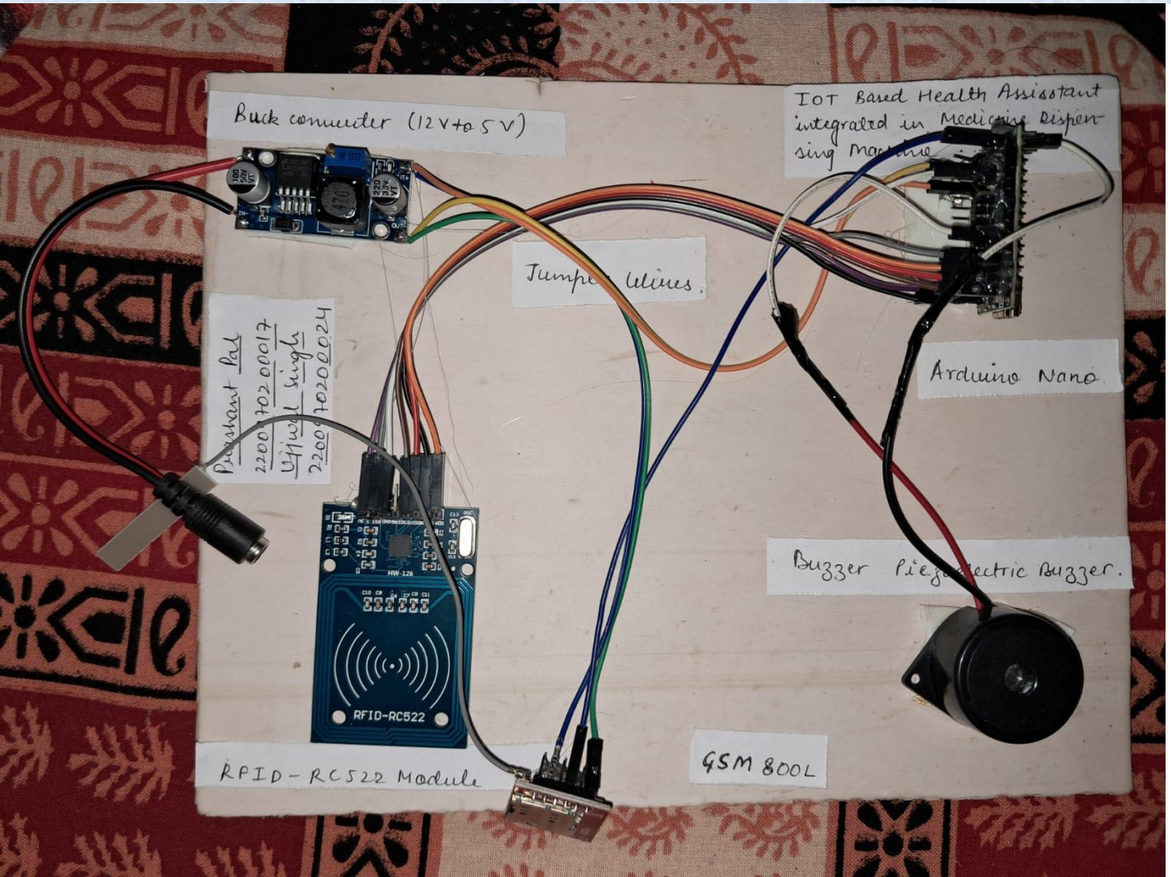
8. Cost Efficiency
•Reduces healthcare costs by preventing serious illnesses through early intervention.
•Lowers the frequency of unnecessary visits to clinics or hospitals.

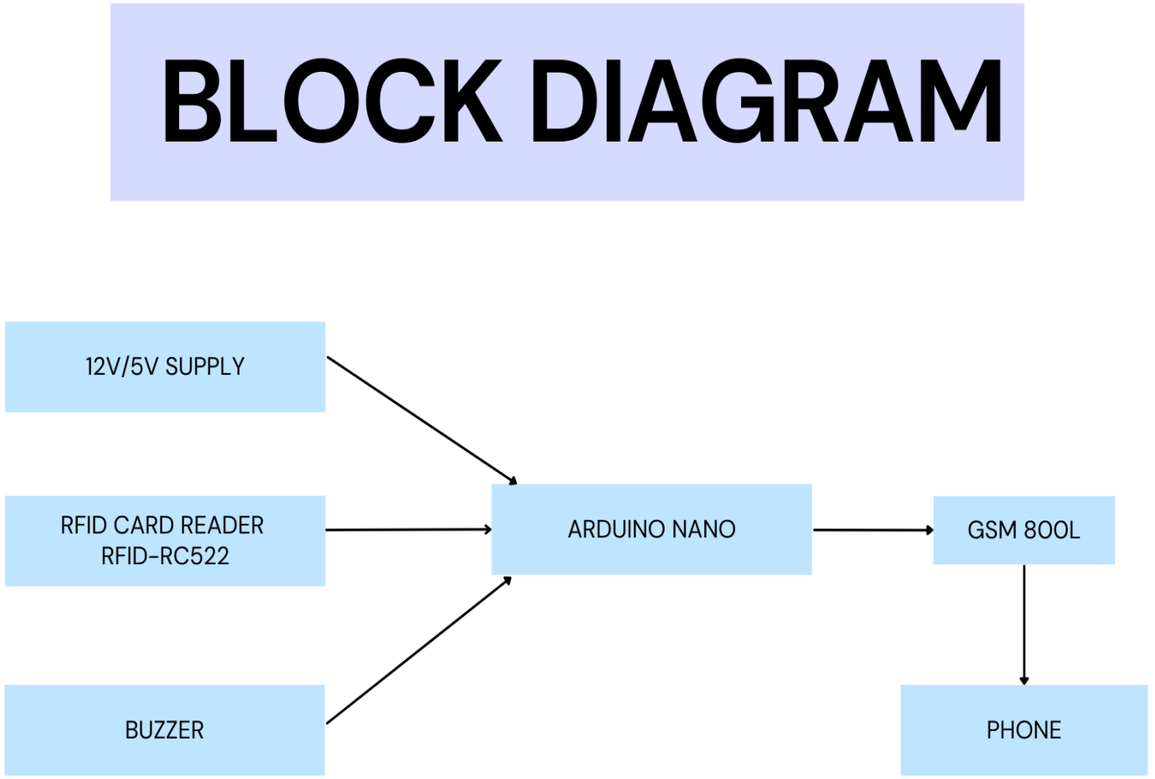
Following Graph is showing the **MARKET SIZE** of **IoT Based Health** Assistant Increased from last 1 Decade....



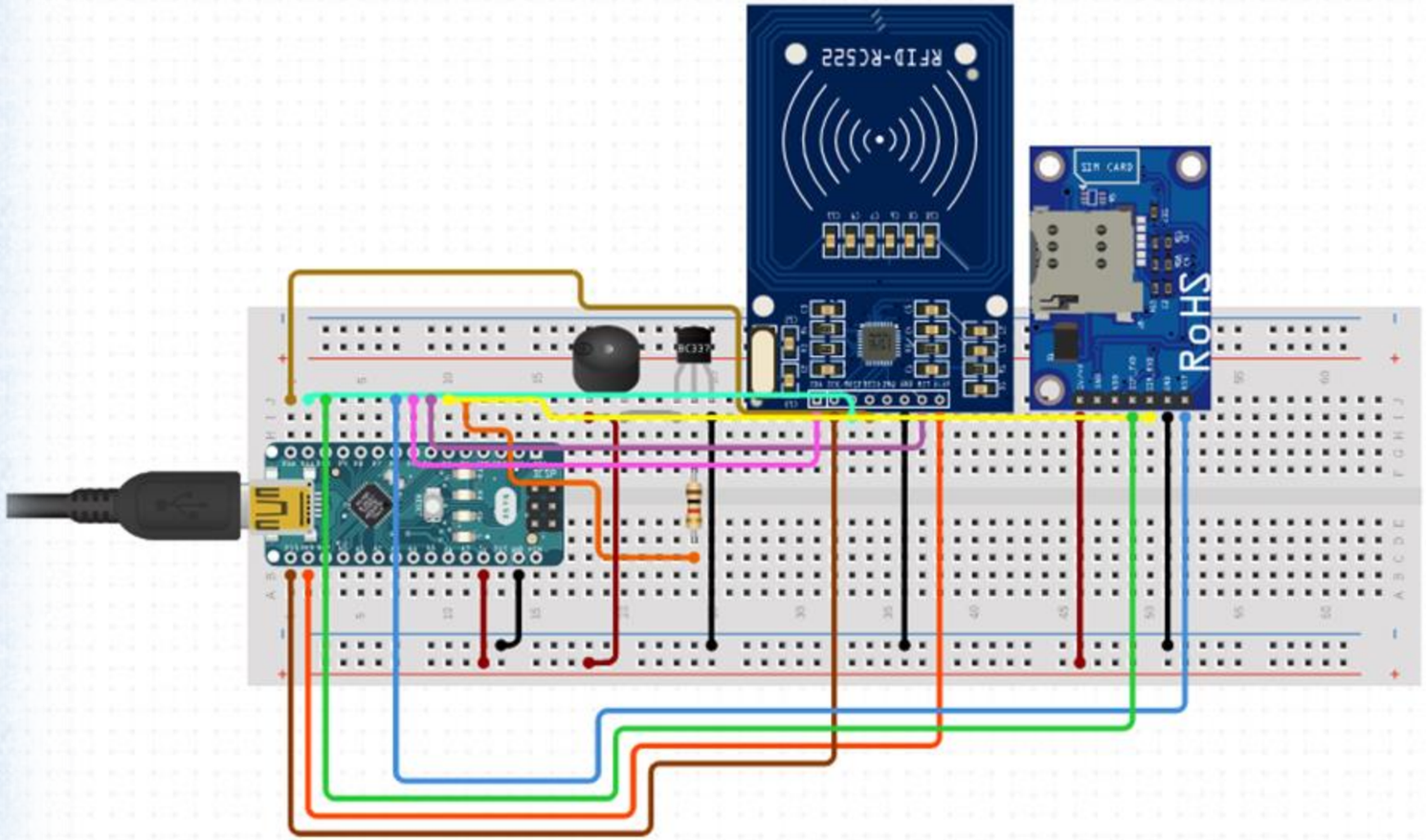
Block Diagram of IoT Based Health Assistant







CIRCUIT DIAGRAM OF IoT Based Health Assistant

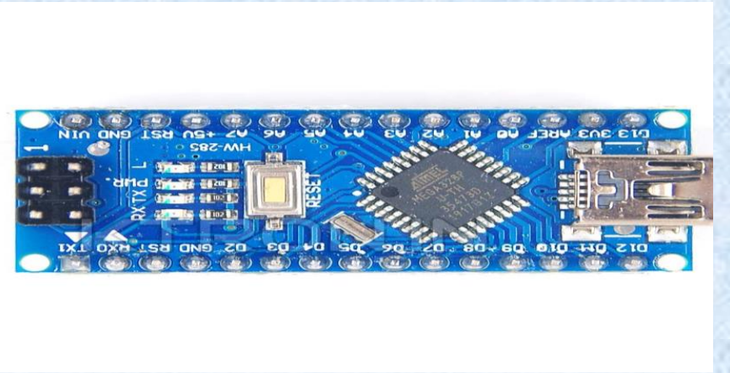


COMPONENTS USED :-

1. **ARDUINO NANO**
2. **GSM 800L**
3. **RFID-RC522 CARD READER MODULE**
4. **Adjustable 12V-5V Step-Down Voltage Regulator**
5. **BUZZER**
6. **ADAPTER 12V-1A**
7. **JUMPER WIRES**

COMPONENTS AND THEIR USAGE

1. Arduino Nano:

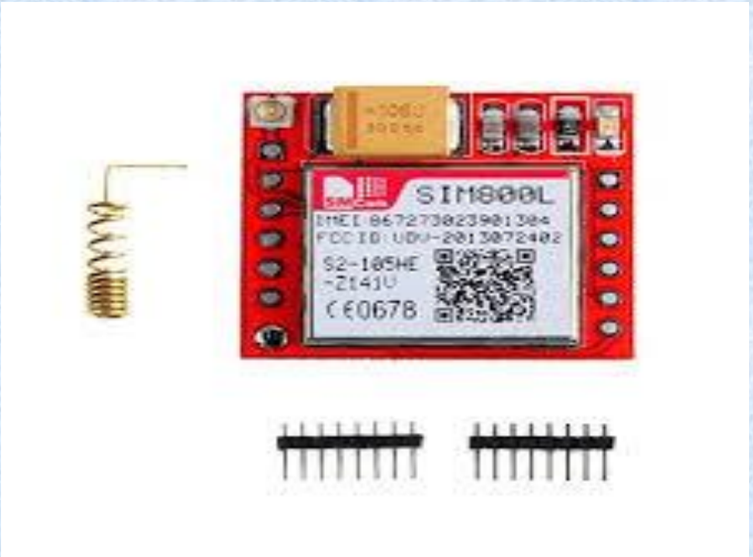


- Acts as the central control unit of the system, managing the scheduling and automation of the medication dispensing process.
- Communicates with other components like the RFID card reader, GSM module, and the dispensing mechanism.

2. RFID Card Reader:

- Used for user authentication. Each patient is assigned an RFID card, and the system verifies the identity of the patient before dispensing medication.
- Ensures that the right medication is dispensed to the correct person by scanning the patient's RFID card.
- The RFID reader generates the radio frequency signal that communicates with the tag. The reader sends out a signal that powers the tag (in the case of passive tags) and receives information back from the tag, such as a unique identifier or data stored in the chip.

3. GSM Module (SIM800L):

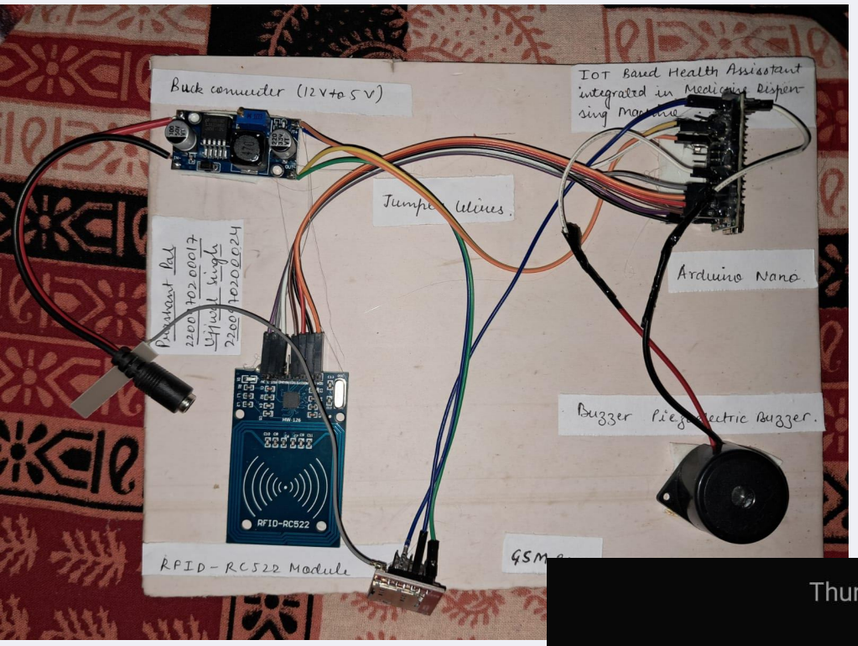


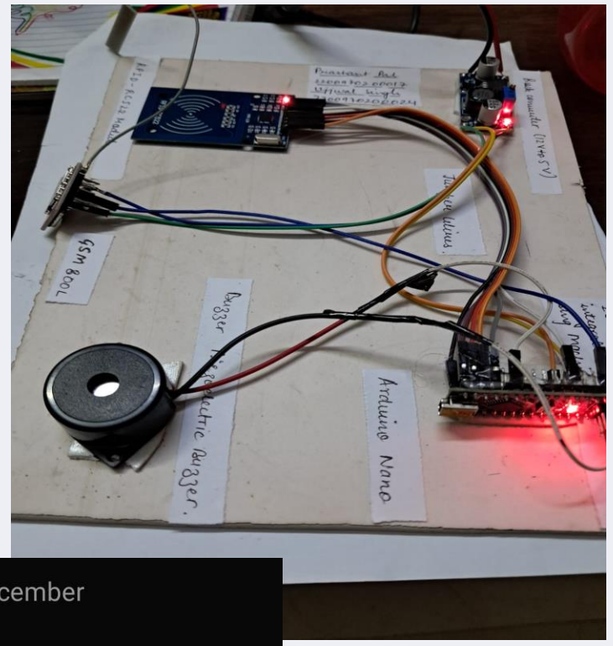
- Enables real-time communication between the system and healthcare providers or caregivers
- The **SIM800** is a **GSM/GPRS module** that enables communication through the Global System for Mobile Communications (GSM) network.
- The SIM800 module can be used in various applications such as sending SMS, making voice calls, and providing internet connectivity via the GPRS (General Packet Radio Service) network.

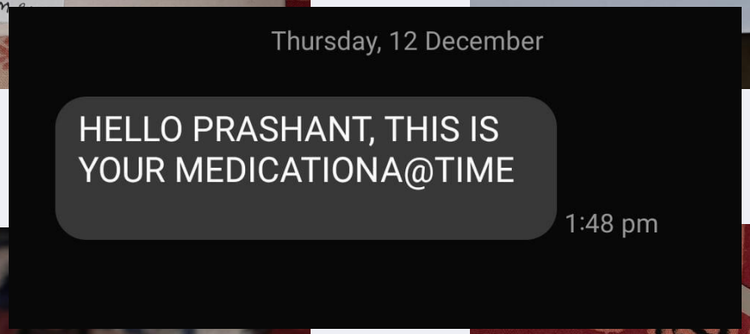
4. Voltage Controller (12V-5V):

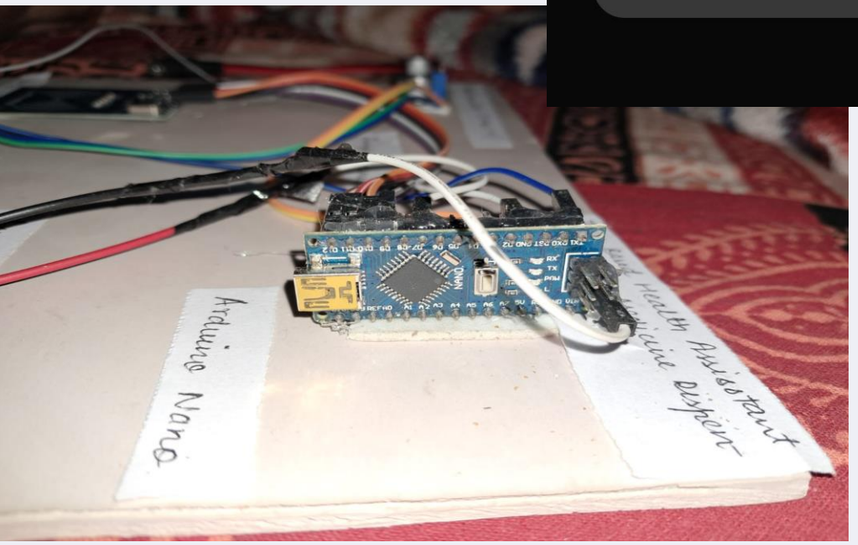
- **To step down voltage from 12V to 5V** a buck converter is a highly efficient
- A resistor voltage divider can theoretically reduce 12V to 5V, but it's unsuitable for practical use with variable loads because the output voltage changes with load resistance.

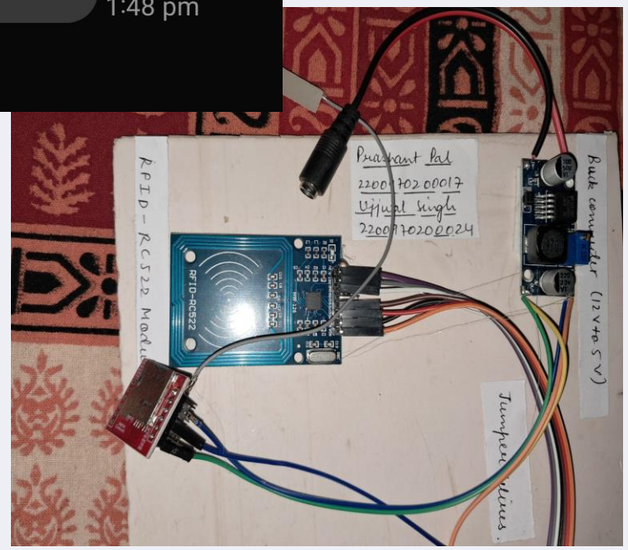
PROJECT OUTCOME











Conclusion

- The IoT-based Medication Dispensing Machine for Monitoring and Healthcare Enhancement offers a comprehensive solution to medication non-adherence.

- By integrating components such as the **Arduino Nano**, **RFID card reader**, and **GSM module**, the system provides automated medication dispensing, real-time monitoring, and remote communication with healthcare providers.

- This enhances patient care, reduces medication errors, and improves overall healthcare outcomes.

- The system is scalable and adaptable to a wide range of applications, from chronic disease management to elderly care, and has the potential to significantly reduce healthcare costs while improving the quality of life for patients.

THANK YOU