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IOT ASSISTED ELEVATOR AUTOMATION WITH REAL TIME STATUS VISUALIZATION

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Abstract: This project presents an IoT-based elevator automation system with three control modes: manual buttons, mobile application control using MIT App Inventor, and voice command operation. An Arduino Uno and HC-05 Bluetooth module enable communication and control. The system uses IR sensors for floor detection and an LCD for real-time status display. It is cost-effective, user-friendly, and improves accessibility through multiple control methods.

Keywords: IoT Elevator Automation, Arduino Uno, MIT App Inventor, Voice Control, Bluetooth Module.

I. INTRODUCTION

The development of IoT has improved automation systems in many applications, including elevator control. Traditional elevators use only manual buttons, which limit flexibility and accessibility.

This project presents an IoT-based elevator automation system with three control modes: manual buttons, mobile application control using MIT App Inventor, and voice command operation. The system uses an Arduino Uno and HC-05 Bluetooth module for communication. IR sensors detect floor position, and an LCD displays real-time status.

The proposed system is user-friendly, cost-effective, and improves convenience by providing multiple control methods.

II. SYSTEM DESIGN

The main components of this project is

i.Arduino UNO
ii.HC-05
iii.IR Sensor
iv.L298N Motor Driver
v.12v DC Geared Motor
vi.Elevator Car
vii.Guide Rails
viii.12v Adaptor
ix.DF Player
x.Speaker

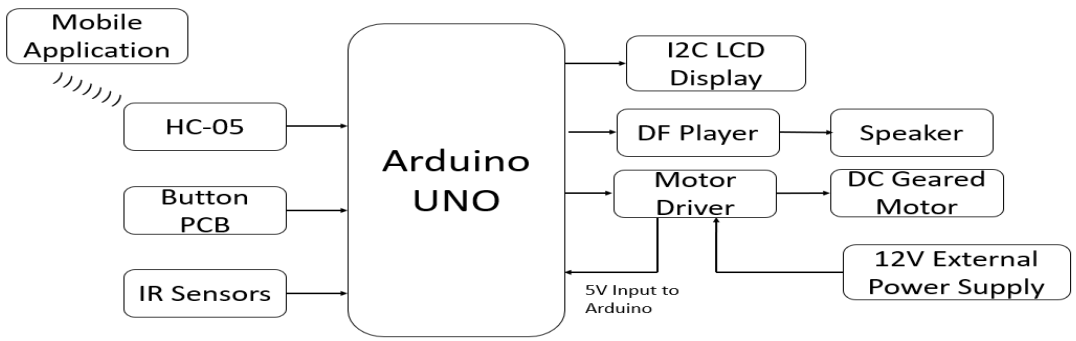

Fig1 Block Diagram

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III. WORKING

The IoT assisted elevator automation system operates using three control modes: manual buttons, MIT App control, and voice commands. The central controller (Arduino Uno) manages all operations of the elevator.

When a user gives input through any mode, the command is sent to the controller via the Bluetooth module (HC-05). The controller processes the input and activates the motor driver to move the elevator cabin in the required direction (up or down).

IR sensors are placed at each floor to detect the current position of the elevator. When the elevator reaches the selected floor, the sensors send signals to stop the motor automatically.

The system also displays the real-time floor status using an LCD display, allowing users to monitor the elevator position. In voice mode, commands are given through the MIT App, which converts speech into text and sends it via Bluetooth.

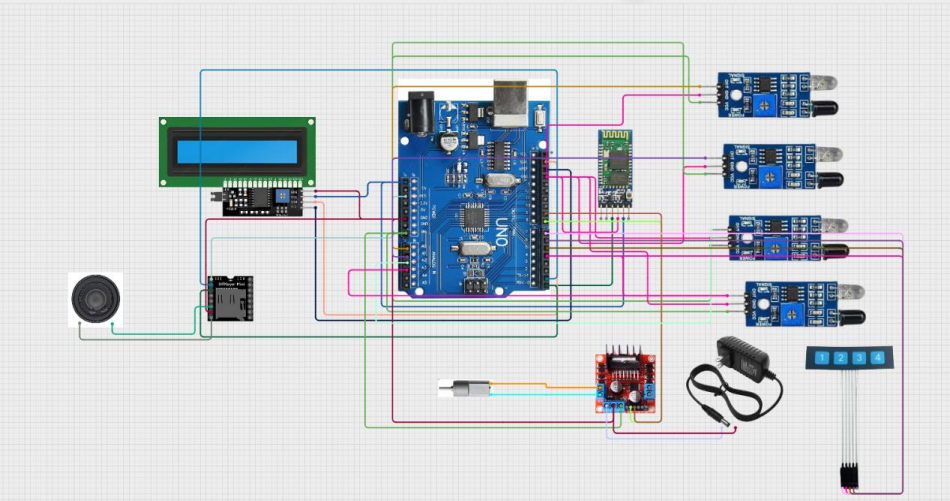

Fig 2 Circuit Diagram

IV. RESULT

The IoT assisted elevator automation system was successfully implemented and tested. The elevator operated effectively using all three control modes: manual buttons, MIT App control, and voice commands. The Bluetooth communication provided reliable data transfer between the mobile application and the controller.
The system accurately moved the elevator to the selected floors, and IR sensors ensured proper stopping at each level. Real-time status of the elevator was displayed on the LCD without delay.

Voice command functionality worked efficiently through the MIT App, providing ease of operation. Overall, the system demonstrated smooth performance, quick response, and improved user convenience.

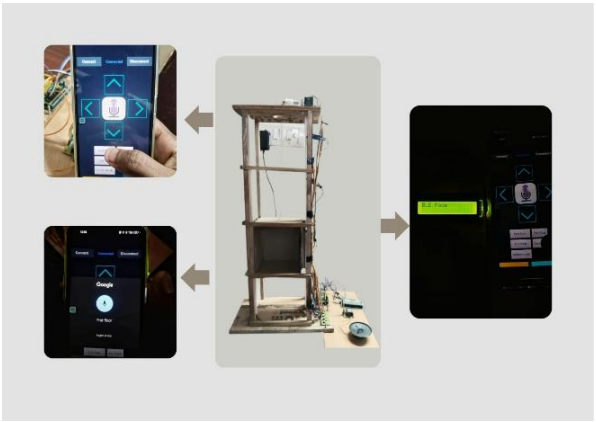

Fig 3. Result of the Elevator in three modes

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V. CONCLUSION

The IoT assisted elevator automation system with real-time status visualization was successfully designed and implemented. The system integrates manual control, MIT App-based control, and voice command operation, providing flexibility and ease of use. The use of Bluetooth communication ensures reliable and efficient data transfer between the user and the controller.

The system demonstrated accurate floor detection, smooth elevator movement, and real-time status display. This project improves user convenience and can be further enhanced by integrating Wi-Fi and cloud-based monitoring for advanced applications.

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