# Ask Me Display Board using Raspberry pi

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***Abstract:*** The "Ask Me" display board is a project that involves using a Raspberry Pi to display messages, audio, and LED lights to provide information to people in public places such as libraries, museums, and hospitals. The display board has a touch screen interface that allows users to select the information they need. The audio output provides additional information to people with visual impairments. The LED display output have the ability to provide additional visual cues. The project involves programming the Raspberry Pi to display information in real-time, in addition interfacing with LED displays and audio components. The "Ask Me" display board can be customized for specific locations and can provide a valuable service to people in public places.

## I. INTRODUCTION

The Ask Me Display Board is an interactive and innovative display board designed to provide real-time information, answer queries, and provide feedback to the attendees of various events, conferences, and exhibitions. The display board is built using the Raspberry Pi, a single-board computer that provides a flexible and customizable platform for creating interactive displays.

The Raspberry Pi offers a range of tools and coding languages that support the easy integration of different components and the creation of dynamic displays. With the Ask Me Display Board, attendees can get relevant and up-to-date information about the event, ask questions, and receive feedback, making it a valuable tool for organizers and attendees alike.

Throughout this project, we will explore the various components, tools, and programming languages required to build the Ask Me Display Board. We will provide a step-by-step guide on how to assemble and program the display board, along with some examples of how it can be applied to different settings.

So, if you are looking to design an interactive and innovative display board for your event, conference, or exhibition, then the Ask Me Display Board using Raspberry Pi is the perfect solution for you!

## II. MARKET SURVEY

The market for interactive display boards is growing rapidly, with a high demand in events, conferences, and exhibitions. Making advantages of technology to provide real-time information and engage attendees is becoming increasingly important for event organizers to design a memorable experience.

Raspberry Pi is a preferred option for creating interactive display boards given its affordability, flexibility, and ease of use. It allows for the combining of various components such as touchscreens, cameras, and sensors, making it a versatile platform for creating interactive displays.

The potential customer base for the Ask Me Display Board using Raspberry Pi includes event organizers, conference managers, exhibition coordinators, and any other individual or organization that requires an interactive display board for their events. The target market could also include schools and universities, museums, and public spaces.

In conclusion, the market for interactive display boards is growing rapidly, and the Raspberry Pi provides an affordable and flexible platform for building such displays. The potential customer base for the Ask Me Display Board using Raspberry Pi is vast, including event organizers, conference managers, exhibition coordinators, and more.

## III. LITERATURE SURVEY

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## IV. BLOCK DIAGRAM
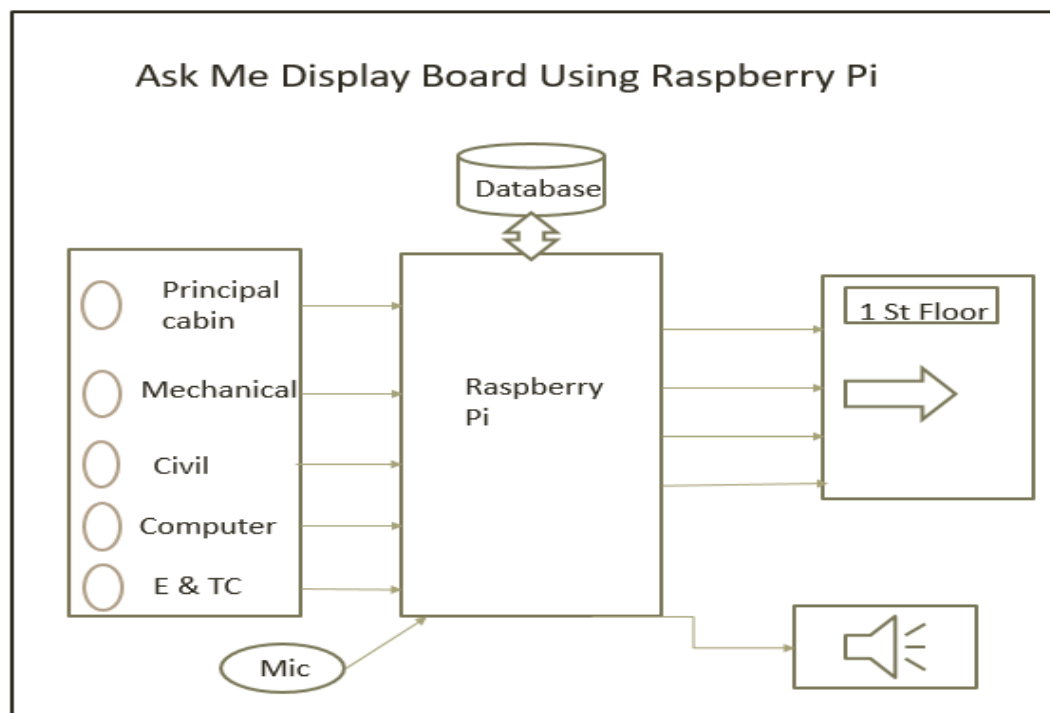


In this project, the Raspberry Pi is the main control unit, used to responsible for receiving user input through the keypad or button and displaying the corresponding information on the LED matrix display board. The Raspberry Pi interacts with the LED matrix through its GPIO connector's pins on the board. The keypad or button provides user input, which is read by the Raspberry Pi to determine what to display on the LED matrix.

## V. RESEARCH METHODOLOGY

This is a proposed methodology for creating a display board using Raspberry Pi:

Define the requirements: The initial action is to define the requirements of the project, including the type of information to be displayed, the display format, the size of the display, and the location of the display.

Choose the hardware: Based on the requirements, choose a suitable Raspberry Pi model, a display screen, and any other necessary hardware, such as power supply, cables, and accessories.

Set up the Raspberry Pi: Install the operating system (such as Raspbian) on the Raspberry Pi and configure it for the display screen.

Design the user interface: Use a programming language (such as Python) to design a user interface for the display board. This can include graphics, text, and interactive elements such as buttons and touch screens.

Integrate data sources: Integrate data sources (such as RSS feeds, social media feeds, or weather APIs) to display real-time information on the display board.

Test and refine: Test the display board thoroughly and refine the user interface and data sources as necessary to ensure that it meets the requirements.

Install and deploy: Install the display board in its final location and deploy the software.

Maintenance and updates: Maintain and update the display board as necessary, including software updates, hardware maintenance, and content updates.

## VI. ADVANTAGES

There are numerous benefits of using Raspberry Pi for a display board project such as Ask Me, including:

Low Cost: Raspberry Pi is an affordable and cost-effective solution for a display board project, in contrast to conventional display board technologies.

Flexibility: Raspberry Pi is a flexible platform that enables customizations and modifications to suit specific requirements, which is particularly useful for a project such as Ask Me where the information displayed may need to be updated or changed frequently.

Easy to Use: Raspberry Pi is user-friendly, and there is a vast community of users who provide support and guidance, making it easy for non-technical individuals to get started.

High Performance: Raspberry Pi offers high processing power and memory, enabling it to display high-quality graphics and multimedia content.

Integration: Raspberry Pi can integrate with various sensors and data sources, making it possible to display real-time information and updates on the display board.

Energy Efficient: Raspberry Pi is energy-efficient, consuming only a fraction of the power required by traditional display board technologies.

Scalability: Raspberry Pi is scalable, meaning that it can be used for large display board projects or smaller projects, depending on the requirements.

Overall, the use of Raspberry Pi for a display board project like Ask Me offers numerous advantages in terms of cost, flexibility, performance, and integration, making it an excellent choice for various organizations and applications.

## VII. FUTURE SCOPE

A number of them potential future scopes for the project Ask Me display board using Raspberry Pi, including:

Augmented Reality: Incorporating augmented reality technology into the display board using Raspberry Pi could provide users with a more immersive experience and allow them to interact with the information in new ways.

Machine Learning: Using algorithms for machine learning with Raspberry Pi could enable the display board to provide more personalized and relevant information based on user behavior and preferences.

Voice and Gesture Recognition: Incorporating voice and gesture recognition technology into the display board using Raspberry Pi could make it easier for users to interact with the information without needing to physically touch the display.

Cloud Integration: Integrating the display board with cloud-based data sources and storage could enable the display board to access and display more extensive and dynamic information.

Energy Efficiency: Exploring ways to further optimize the effectiveness of the display board using Raspberry Pi, such as by implementing sleep modes might aid in lowering energy consumption and make the system more sustainable.

Mobile Integration: Developing a mobile application that works with the display board using Raspberry Pi could enable users to access and interact with the information from their smartphones and tablets, providing more flexibility and convenience.

These potential future scopes could expand the capabilities and usefulness of the Ask Me display board project using Raspberry Pi, providing new opportunities for innovation and enhancing the overall user experience.

## 5. CONCLUSION

In conclusion, the project Ask Me display board using Raspberry Pi offers an efficient, low-cost, and flexible solution for displaying information in public spaces. The project utilizes the high processing power and memory of Raspberry Pi to display high-quality graphics and multimedia content, and it can integrate with various sensors and data sources, making it is feasible to display real-time information and updates on the display board.

The project has many benefits, including its low cost, flexibility, easy to use nature, high performance, integration, energy efficiency, and scalability. Additionally, the future scope of the project is vast and can be further enhanced by incorporating technologies such as augmented reality, machine learning, voice, and gesture recognition, cloud integration, energy efficiency, and mobile integration.

Overall, the project Ask Me display board using Raspberry Pi is an excellent choice for various organizations and applications that require a customizable, easy-to-use, and energy-efficient display board solution. It offers an ideal combination of affordability, scalability, and performance, making it a versatile and efficient platform for displaying information in public spaces.

## VIII. REFERENCES

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