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PROJECT: RUBIK'S CUBE SOLVER MOBILE APPLICATION

OVERVIEW:

This project aims to develop a Rubik's Cube Solver mobile application that will allow users to conveniently solve 3x3 and 2x2 Rubik's Cubes by simply scanning them. The application will utilize computer vision algorithms to analyze the cube's configuration, identify the optimal solution, and guide the user step-by-step towards solving the cube. By providing a user-friendly and efficient solving experience, the application aims to cater to both beginners and experienced Rubik's Cube enthusiasts specifically for 3x3 and 2x2 cube sizes.

STATEMENT OF THE PROBLEM:

Solving the Rubik's Cube can be a challenging task, requiring a deep understanding of the puzzle's algorithms and a significant amount of practice. Many users struggle with finding the optimal solution and following complex solving instructions. Additionally, carrying a physical guide or referring to online tutorials can be inconvenient. Therefore, there is a need for a mobile application that simplifies the solving process, offers clear instructions, and enhances the user experience, specifically for the popular 3x3 and 2x2 cube sizes.

FEATURES:

The Rubik's Cube Solver mobile application will include the following features, focused on 3x3 and 2x2 cube sizes:

a) Cube Scanning: The application will utilize the device's camera and computer vision algorithms to scan and analyze the 3x3 and 2x2 Rubik's Cubes' configurations accurately.

b) Solving Algorithm: An efficient Rubik's Cube solving algorithm will be implemented to generate optimal step-by-step solutions based on the cube's configuration, specifically tailored for 3x3 and 2x2 cubes.

c) Step-by-Step Guidance: The application will provide intuitive and clear instructions for each step of the solving process, specifically designed for 3x3 and 2x2 cubes. Visual cues, animations, and move highlighting will guide the user through the solution.

d) User-Friendly Interface: The application will feature an intuitive and easy-to-use interface, ensuring a smooth and enjoyable user experience specific to 3x3 and 2x2 cube solving.

e) Time Tracking: The application will include a timer to track the user's solving time specifically for 3x3 and 2x2 cubes, allowing them to challenge themselves and monitor their progress over time.

f) Progress Tracking: Users will be able to save their solving history and track their improvements specifically for 3x3 and 2x2 cubes. This feature will motivate users to achieve faster solving times and measure their progress accurately.

g) Customizable Options: While the application primarily focuses on recommending the optimal solving method, it can offer customizable options for users who prefer specific methods or want to explore different techniques manually.

PROJECT: WEBINAR TRACKER APP

OVERVIEW:

The Engineering Webinar Tracker is a user-friendly mobile application that provides engineering students with a centralized platform to explore, promote, and engage with webinar events. By leveraging the power of technology, the app will simplify the process of discovering and participating in webinars, ultimately fostering continuous learning and professional growth.

STATEMENT OF THE PROBLEM:

Currently, engineering students often struggle to find and keep track of relevant webinar events due to the scattered nature of available resources. This results in missed opportunities for valuable learning experiences and limited exposure to industry insights. Moreover, the absence of a dedicated platform for students to promote their own webinars inhibits knowledge-sharing and collaboration within the engineering community.

FEATURES:

The Engineering Webinar Tracker app will incorporate the following key features to address the identified problems effectively:

a. Webinar Promotion

- ***Student Webinar Submission:*** Engineering students will have the ability to submit their own webinars, enabling them to showcase their expertise and share knowledge with their peers.

- ***Social Sharing:*** The app will integrate social media sharing capabilities, allowing users to promote webinars they find interesting to their personal networks effortlessly.

b. Bookmarking and Notifications

- ***Bookmarking:*** Users can bookmark webinars they wish to attend or revisit, enabling easy access to event details and registration information.

- ***Reminders and Notifications:*** The app will send timely reminders and notifications to users, ensuring they never miss upcoming webinar events and registration deadlines.

PROJECT: GROCERY LIST APP

OVERVIEW:

Grocery List is an application that allows grocery shoppers to prepare, organize, and manage their grocery list for an optimize grocery shopping trips. Grocery items are sorted by category from which the users are able to choose to add to their grocery list. The app informs the user about the item's availability and price, and automatically computes the total cost of the entire list. Another module dedicated for the shop owners will have the feature to edit the prices of items and their availability.

STATEMENT OF THE PROBLEM:

Grocery shoppers occasionally forget something they wish to buy. Sometimes at the grocery, they are met with disappointed knowing that the item they wish to buy are currently out of stocks. These may result in an incomplete ingredient for a recipe, delay of plans, another trip to the grocery or others depending on the importance of the missed item. The repercussion affects a person's time, money, stress, and others.

FEATURES:

The Grocery List app will incorporate the following key features to address the identified problems effectively:

a. Customizable Lists

- Grocery shoppers will be able to create multiple lists for their grocery shopping trips. They will be able to add and remove items from the list, edit the number of quantity of an item, and organize the items by category.

b. Manage Item Information

- Shop owners (admin) will be able to edit the price of an item to match the actual price in the store. They will also be able to flag an item as unavailable if there is no more stock in the store.

c. Price Comparison

- Grocery shoppers will be able to see the price of an item and compare it to other items or other brand of the same item.

d. Schedule, Notification, and Reminder

- Grocery shoppers will be able set a schedule for their grocery list. A notification or reminder is sent to the grocery shopper when a schedule for their grocery list is about to come up.

PROJECT: ITEM INVENTORY APP

OVERVIEW:

Item Inventory is an application that allows businesses to keep track and manage the inventory count of their items. Business owners are able to increase the quantity of an item as stocks come in, and decrease them as items are sold. Aside from the product name and quantity, other information such as price and category may be added.

STATEMENT OF THE PROBLEM:

Manually counting the quantity of items in the inventory can be repetitive and tedious. Furthermore, it is prone to human error which might cause miscalculation and raise stealing accusation.

FEATURES:

The Item Inventory app will incorporate the following key features to address the identified problems effectively:

a. Inventory Management

- Business owners will be able to increase the quantity of an item as stocks come in or decrease them as items are sold. This simplifies the process of manually counting to keeping track of inventory.

b. Manage Item Information

- Business owners will be able to add additional information about the items to help them search for the inventory count of a particular item.

c. Notification, and Reminder

- A notification is sent to the business owner when inventory count of an item is low to remind them to order stocks.

PROJECT: CEA MAP ASSISTANT

OVERVIEW:

CEA Map Assistant is an application that guides and assists engineering student to navigate the CEA building. The app determines the current location of the student and prompts for a room that the student wants to go. The app will show floor plans of CEA for each floor, creating a path from the current location of the student to the room that the student wants to go. The path serves as a guide for the students to follow to reach their destination.

STATEMENT OF THE PROBLEM:

Engineering students, especially freshmen and transferees, are not entirely familiar with CEA. The complex structure of the building can be confusing not only to the students but to visitors as well.

FEATURES:

The CEA Map Assistant app will incorporate the following key features to address the identified problems effectively:

a. Determine Current Location

- The app may use Global Positioning System (GPS) to determine the current location of the student. An additional prompt may be given to determine which floor the student is in.

b. Detailed Floor Plan

- The app uses a floor plan of the CEA to a top-down view of the current floor the student is currently in. The floor plan changes when the student comes up or down a floor.

c. Create Path

- The app prompts the student for a room destination they want to go. The app creates a path from the current location of the student to the destination they want to go.