Problem Statement

AI Based Customised Kitchen for India

The prevalent issue encountered by Indian kitchens pertains to the challenge of replicating specific dishes due to a lack of knowledge regarding the dish itself, its ingredients, and the precise measurements needed to achieve the desired flavour profile. This underscores the necessity for a technological solution that empowers individuals to prepare dishes independently.

Unique Idea Brief (Solution)

We have implemented our unique training model that utilizes Machine Learning Algorithms to identify dishes. Once the dish is predicted, it is processed by the LLM, resolving any uncertainties about cooking. Our system allows users to upload images from their devices or drives, eliminating the need for external assistance in obtaining dish-related information.

Features Offered

Real-time Image Analysis: Analyse images instantly from the device.

Interactive Questioning: Users ask questions about image content using natural language.

AI-driven Answering: Answers generated based on image analysis and user queries.

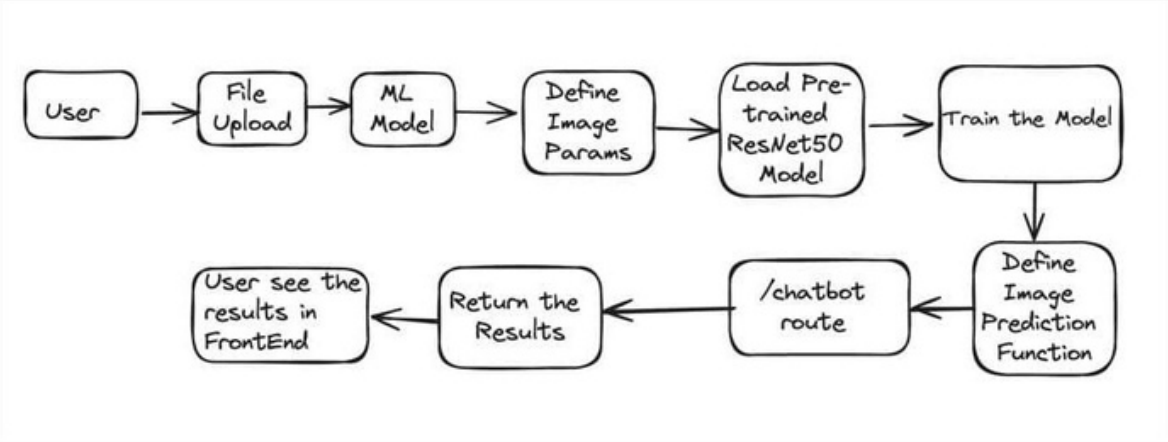
Promotes Independence: Empowers individuals to access cooking information independently.

Accessibility Features: User-friendly interface with compatibility for screen readers.

Process flow

A[Start] --> B[Define Image Parameters]
B --> C[Initialize ImageDataGenerator]
C --> D[Create Train and Validation Generators]
D --> E[Load Pre-trained ResNet50 Model]
E --> F[Add Custom Layers on Top of ResNet50]
F --> G[Compile the Model]
G --> H[Train the Model]
H --> I[Evaluate the Model on Validation Data]
I --> J[Save the Trained Model]
J --> K[Load Pre-trained Model for Prediction]
K --> L[Define Image Preprocessing Function]
L --> M[Define Image Prediction Function]
M --> N[Define Function to Test All Images in Directory]
N --> O[Test the given Images]
O --> P[Return the Results]
P --> Q[Print Preview of Results]
Q --> R[End]

Architecture Diagram



Technologies used

Back-End

Tensorflow

Flask

Front-End

HTML

CSS

JavaScript

Team members and contribution:

Kaustubh Krishna

Backend Development

Making the ML Model and fine-tuning the LLM.

Sachin Prasanth

UI/UX Designing and making the templates and Scripts for the front-end design of the website.

Conclusion

There's a significant challenge when it comes to replicating Indian dishes at home due to limited access to authentic ingredients, unclear measurements, and unfamiliar cooking techniques. This creates a demand for a technological solution that can empower home cooks. By offering user-friendly tools, this solution can bridge the knowledge gap, helping cooks confidently recreate delicious and complex Indian dishes in their own kitchens.