Intelligent Refrigerator to Recommend Recipe Using Hybrid Approach

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Problem Statement

To design an Intelligent Refrigerator System which recommends users the recipe based on vegetables present inside the fridge.

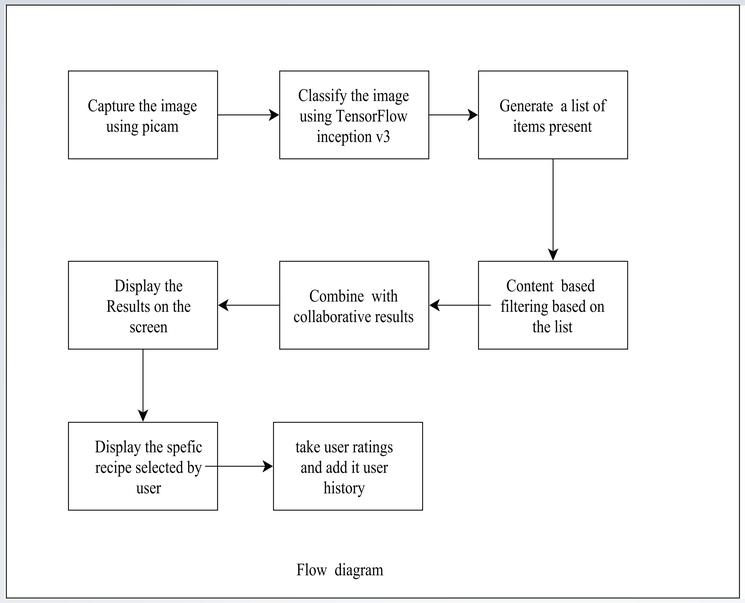
Introduction

Today's world we have smart IoT devices present everywhere, kitchen is a place where we tend to bring such smart devices.We propose the inception of smart refrigerator. Smart refrigerator to recommend recipes based on user preferences and vegetables present inside the fridge.Eating healthy food for a healthy lifestyle is must in today's polluted world is must in today's polluted world.Smart refrigerator is a novel approach to solve this problem by suggesting various recipes which have health benefits by helping to meet the daily nutritional needs.A lot of times we are confused which dish to cook and end up wasting lot of time thinking about it.

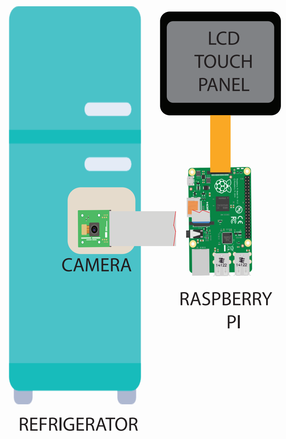
Objectives

- Get proper recommendation of recipe based on the items available.
- Get recipe suggestions based on the user profile and preferences.
- Provide multimedia abilities to fridge.
- To be able to see items inside fridge present without opening the door.
- To help user quickly decide which recipe to cook and save one's valuable time.

Methodology



Flow diagram



Description

Working:

The project objective is to recommend recipes to the user based on the items available and the user preference.

The raspberry pi micro-controller is used along with picam and a LCD with touchpanel for various I/O operations.The user can see the inside of the fridge without even actually opening it with the help of camera and the display.

When the user requests for the recommendation ,the camera captures the images and these images are classified using TensorFlow inception framework which is a pretrained neural network, using this classification information we generate a list of items present and based on this list recipe recommendation is generated using a content based approach.

These results are combined with collaborative filtering which is based on user ratings and other factor for similar user like area , type of food ,food consumed previously etc.

Future Work and Challenges

1)To classify and identify vegetables correctly.
2)Similar objects are difficult to identify.
3)Internet connectivity is one of its requirements.
4)Provide Advanced multimedia abilities like video streaming browsing etc.
5)To have smart application to manage the inventory.
6)To provide a special diet plan to every user and cumulative common plan to all user of the single fridge based on weight of each user and bmi index.

Applications

Smart Diet Management Application.
Smart Recommender system according to user profile and preference.
Smart Inventory Management.

CONCLUSIONS

Thus we have designed and effective Recommendation system for recipes.The Smart Refrigerator is a useful utility in terms of time saving and maintaining healthy diet to have healthy lifestyle.The recommendations obtained by it can benefit user in multiple ways.

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