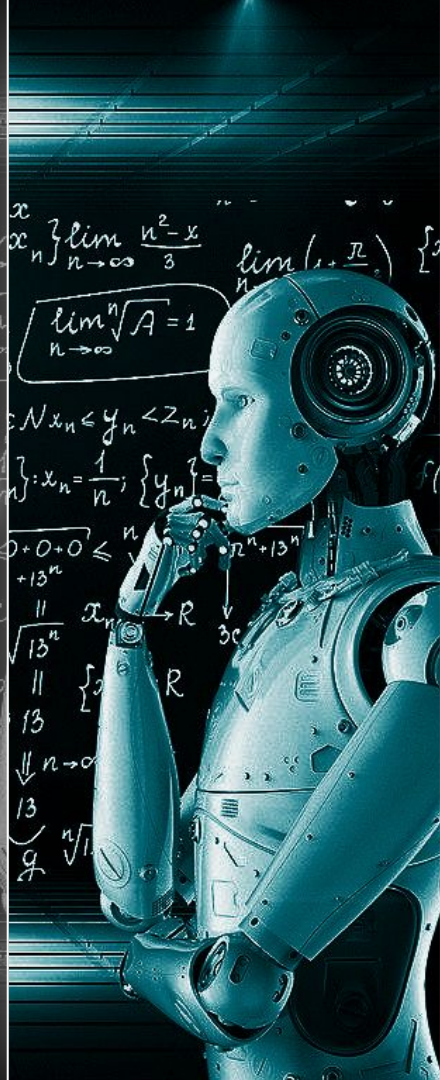
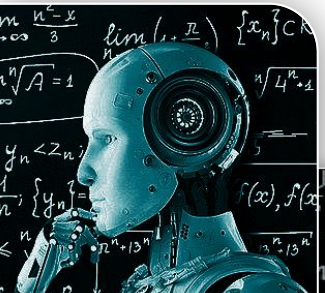
AI BASED COOKING MACHINE

CUSTOMIZED AI KITCHEN



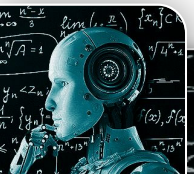
PROBLEM STATEMENT

1. To create personalized dishes efficiently.
2. To create a machines that cater to all user preferences and customization.
3. To integrate AI in the exciting kitchen and to make it modernised.
4. To integrate embedded system with ai to control the entire cooking process along with cleaning process.



SOLUTION

- **The problems that we planned to solve from the above problem statements**
  - Integrating AI with embedded system for creating personalized dishes efficiently with the available ingredients
  - Alerting ingredient shortage to the user
  - Application interface is created to get the text/voice input of the food dish demand from the user to the machine for making the dish via mobile application



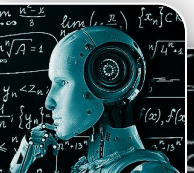
FEATURES

Smart Ingredient Detection:

- Image processing to detect and identify raw materials and vessels.
- Real-time recognition and automatic adjustment of recipes.

Recipe Personalization:

- AI suggests recipes based on available ingredients and user preferences.
- Customizable portion sizes and dietary considerations.

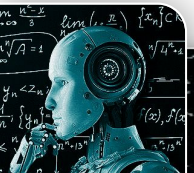


Automated Vessel Management:

- AI selects appropriate vessels for cooking.
- Integration with a smart dishwasher for automated cleaning.

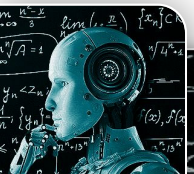
User-Friendly Interface:

- Intuitive touch screen and voice control for easy interaction.
- Integration with mobile apps for remote control and monitoring.



PROCESS FLOW

- The AI kitchen project allows users to voice their preferred dish via an app, which uses Google Speech-to-Text.
- The request is sent to a Firebase database, then processed by Gemini AI, which detects ingredients and suggests recipes.
- The Raspberry Pi controls the cooking process, moving ingredients with conveyor belts and robotic arms, and manages induction heating.
- It also automates the dishwasher, ensuring seamless and efficient cooking and cleaning.



ARCHITECTURE

Google Speech to text

Firebase

Realtime Database for transmission

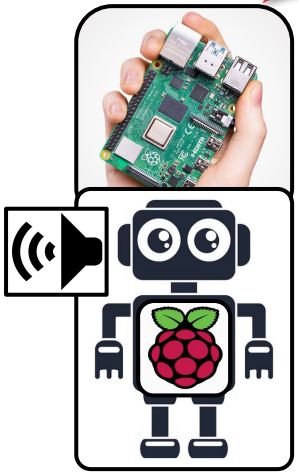
Gemini

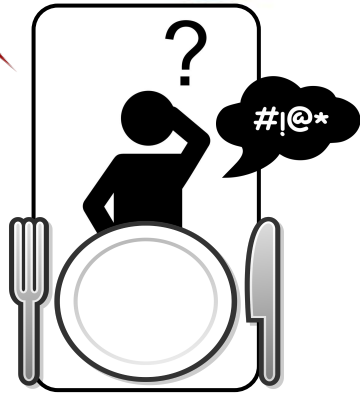
Ai integrated rule based python script

User preference
+
Prompt for response in python dict format

```
fruitDict = {
    "fruit": "Apple",
    "healthy": True,
    "calories": 95,
    "colors": ["red",
}
```

Response like cook process, time, ingredient

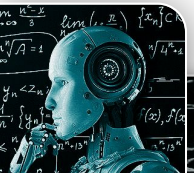




PREFERRED DISH OR ASKING SUGGESTION

TECHNOLOGY

1. **Raspberry Pi:**
   - **Role:** Central control unit for coordinating various components.
   - **Purpose:** Manage processing tasks, sensor data integration, and communication with other devices.
2. **Gemini AI:**
   - **Role:** AI platform for image processing and machine learning.
   - **Purpose:** Detect and identify ingredients, customize recipes, and enhance user interaction.

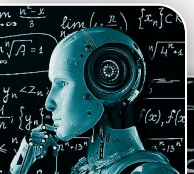


3. **Stepper Motor:**

- **Role:** Actuator for precise movement control.
- **Purpose:** Operate robotic arms and conveyor belts for handling ingredients and vessels.

4. **Conveyor Belt:**

- **Role:** Automated transportation system.
- **Purpose:** Move ingredients and vessels to different stations within the kitchen.



TECHNOLOGY

Stepper Motor:

- **Role:** Actuator for precise movement control.
- **Purpose:** Operate robotic arms and conveyor belts for handling ingredients and vessels.

Conveyor Belt:

- **Role:** Automated transportation system.
- **Purpose:** Move ingredients and vessels to different stations within the kitchen.

Induction Coil with Drivers and Microcontroller:

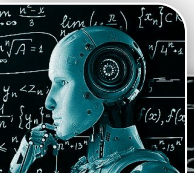
- **Role:** Heating element.
- **Purpose:** Provide precise and efficient heating for cooking processes.

Ultrasonic Sensor:

- **Role:** Measurement tool.
- **Purpose:** Detect volume and weight of ingredients with high accuracy.

LDR (Light Dependent Resistor):

- **Role:** Sensor for location detection.
- **Purpose:** Determine the presence and position of ingredients and vessels within the kitchen setup.



TEAM MEMBERS

TEAM NAME	ELWIZ	
LEADER NAME	ZUMANA BEGUM I	ECE IInd YEAR
MEMBER 2 NAME	SHIVA.P	ECE IInd YEAR
MEMBER 3 NAME	MOHAMMED SAMEER.M	ECE IInd YEAR
MEMBER 4 NAME	VIDHYA.K	ECE IInd YEAR
MEMBER 5 NAME	SHARANYA.P	ECE IInd YEAR