COLLABORATIVE PROJECT WITH INTEL

PROJECT TITLE : **Customised AI Kitchen for India**

TEAM NAME : TechTribe

TEAM MENTOR : Dr T V RAJINI KANTH, Professor & Head,
Department of CSE-AI&ML
rajinikanthtv@sreenidhi.edu.in
rajinitv@gmail.com, Ph. No: 9849414375

TEAM MEMBERS :

Vidapu Virija	21311A6631	AIML	Team lead	21311a6631@aimlsreenidhi.edu.in
G Sai Dhanush Yadav	22315A6602	AIML	Team member	22315a6602@aimlsreenidhi.edu.in
Naga Krishna Reddy	21311A6608	AIML	Team member	21311a6608@aimlsreenidhi.edu.in
G. Srinivas	21311A6625	AIML	Team member	21311a6625@aimlsreenidhi.edu.in
P. Sannith Reddy	21311A66G4	AIML	Team member	21311A66g4@aimlsreenidhi.edu.in

INSTITUE NAME : Sreenidhi Institute of Science and Technology
Yamnampet, Ghatkesar
Hyderabad - 501301

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ABSTRACT

We are in the world of AI (Artificial Intelligence) now, and the idea here is to develop an AI Kitchen Model for customized dishes. It's one of the challenges that we face every day to prepare dishes on time at home. There could be AI based Vending Machines, Coffee and Bread making Products in the market now. But, this will not cover all the dishes that users may prefer. Another bigger issue is to get cooking utensils, which must be ready/cleaned. We have

equipment like Washing Machines. But, it requires manual intervention to put utensils for washing or remove the same after washing. The idea here is to address this issue as well. Pick the right utensil based on the quantity of food. The idea is to integrate the 2 requirements of AI enabled Kitchen and Utensil Washing, and connecting them with each other.

KEYWORDS

AI-Powered Kitchen, Customized Culinary Experience, Personalized Meals, Culinary Innovation, Tailored Dining, Smart Kitchen Technology.

INTRODUCTION

Step into a new era of culinary excellence with our state-of-the-art Customized AI Kitchen, now in India. Combining advanced artificial intelligence with the rich and diverse culinary traditions of India, we bring you an unparalleled dining experience that is tailored to your unique tastes and preferences.

Our AI Kitchen is designed to revolutionize the way you enjoy food. With cutting-edge technology, we can personalize each meal to suit your dietary needs, flavor preferences, and nutritional goals. Whether you crave traditional Indian flavors, fusion dishes, or something entirely new, our AI-powered system ensures that every dish is crafted to perfection just for you.

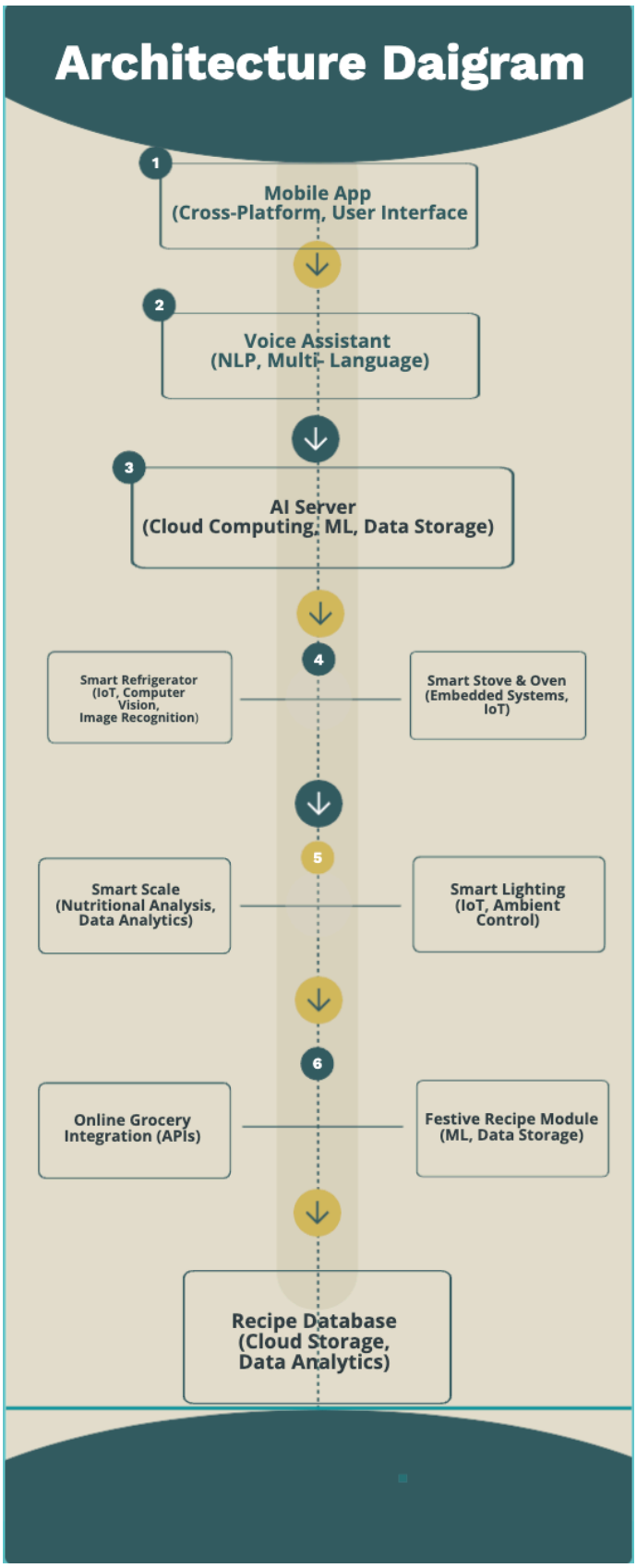
MOTIVATION

The motivation behind this project is to provide the journey of innovation with our Customized AI Kitchen in India, where we blend advanced technology with the rich culinary traditions of our nation. Let's harness our creativity and passion to redefine dining experiences, making each meal personalized and exceptional. Together, we are not just creating a new service, but pioneering a revolution that promotes sustainability, health, and efficiency. Stay inspired by the impact we can make, push boundaries, and transform the culinary landscape with every step we take. Our potential is limitless, and our journey is just beginning—let's make history together!

TECHNOLOGIES USED

- **Development Tools:** GCC (GNU Compiler Collection), Git
- **Libraries:** mbedTLS
- **User Interface:** Command Line, GTK/Qt (optional)

ARCHITECTURE



Algorithm:

```python
import ultralytics
from ultralytics import YOLO
model = YOLO('D:\Intel_Project\yolosaved_bestdataset_2_epoch25.pt')
results = model('D:\Intel_Project\images1.jpeg')

vegetable_names = []

# Extract the class names from the results and store them in the list
for result in results:
    for class_id in result.boxes.cls:
        class_name = model.names[int(class_id)]  # Convert class_id to integer and get
        vegetable_names.append(class_name)

# Remove duplicates to get unique vegetable names
unique_vegetable_names = list(set(vegetable_names))

# Print the list of vegetable names
print("Predicted Vegetables:", unique_vegetable_names)
```

```python
from flask import Flask, request, jsonify, send_from_directory
from flask_cors import CORS
import os
from ultralytics import YOLO
import google.generativeai as genai

# Initialize Flask app
app = Flask(__name__)
CORS(app)

# Configure Google Gemini API key directly
genai.configure(api_key='AIzaSyB90VEMI27ewQxH_dtcKlAvpMwykZKkmq0')

# Initialize YOLO model
model = YOLO('yolosaved_bestdataset_2_epoch25.pt')

def detect_items(image_path):
    results = model(image_path)
    detected_items = []
    for result in results:
        for class_id in result.boxes.cls:
            class_name = model.names[int(class_id)]
            detected_items.append(class_name)
    return list(set(detected_items))

def get_recipe_suggestions(detected_items):
    formatted_list = ', '.join(detected_items)
    prompt = f"I have the following fruits and vegetables: {formatted_list}. What food names can I make using them?"

    response = genai.generate_text(prompt=prompt)
    return response.result.strip()

@app.route('/')
def index():
    return send_from_directory('', 'index.html')

@app.route('/styles.css')
def styles():
    return send_from_directory('', 'styles.css')

@app.route('/upload', methods=['POST'])
def upload_file():
    if 'image' not in request.files:
```

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@app.route('/styles.css')
def styles():
    return send_from_directory('', 'styles.css')

@app.route('/upload', methods=['POST'])
def upload_file():
    if 'image' not in request.files:
        return jsonify({'error': 'No image part in the request'}), 400

    image = request.files['image']

    if image.filename == '':
        return jsonify({'error': 'No selected file'}), 400

    image_path = f'tmp/{image.filename}'
    image.save(image_path)

    # Detect items using the YOLO model
    detected_items = detect_items(image_path)

    # Get recipe suggestions from Gemini API
    recipe_suggestions = get_recipe_suggestions(detected_items)

    return jsonify({
        'detectedItems': detected_items,
        'recipeSuggestions': recipe_suggestions
    })

if __name__ == '__main__':
    if not os.path.exists('tmp'):
        os.makedirs('tmp')
    app.run(debug=True)

```

CONCLUSION

In conclusion, Customized AI Kitchen in India represents a bold step forward in the culinary world, combining the best of technology and tradition to offer a dining experience that is uniquely tailored to individual preferences. As we embark on this exciting journey, we are committed to innovation, excellence, and sustainability. Together, we have the opportunity to transform the way people enjoy food, making it not just a necessity, but a personalized and extraordinary experience. Let's continue to push boundaries, stay motivated, and shape the future of dining with creativity and passion. Our potential is limitless, and with each step, we move closer to redefining the culinary landscape.

FUTURE SCOPE

Future enhancements of this project:

- Advanced Personalization Algorithms
- Integration with Health and Fitness Apps
- Voice-Activated Ordering Systems
- Augmented Reality (AR) Menus
- Robotic Kitchen Assistants
- Sustainable Sourcing and Waste Management
- Nutritional Insights and Feedback

REFERENCES

- **mbedTLS Documentation:** https://tls.mbed.org/tech-updates/releases
- **OpenSSL Documentation:** https://www.openssl.org/docs/
- **GCC Documentation:** https://gcc.gnu.org/onlinedocs/
- **Git Documentation:** https://git-scm.com/doc
- **GTK Documentation**: https://www.gtk.org/docs/
- **Qt Documentation:** https://doc.qt.io/

SOURCE CODE AND CONFIGURATION FILES

Source code for the project is attached to the GitHub Link:
Cryptography Simulation

https://github.com/Virijavidapu/Intel-Customized-AI-Kitchen