



# Basic Details of the Team and Problem Statement

**Ministry/Organization Name/Student Innovation:** AICTE, MIC-Student Innovation

**PS Code:** SIH 1491

**Problem Statement Title:** Empowering Restaurants with Data-Driven Dynamic Pricing and Real-Time Insights

**Team Name:** Beat Bugs

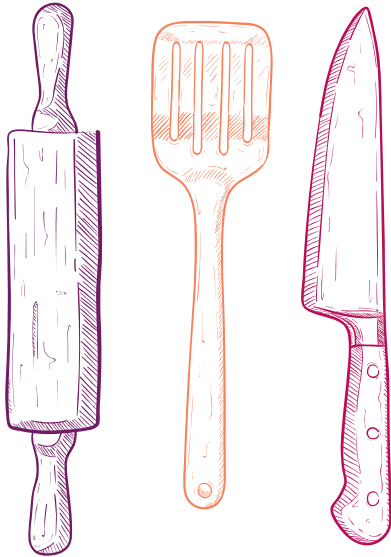
**Team Leader Name:** Madhura Mhatre

**Team Members Name:** Aaman Bhowmick, Aayushi Salunkhe, Aarya Lotke, Mandar Ambre, Tarun Shetty

**Institute Code (AISHE):** C-33895

**Institute Name:** Vivekanand Education Society's Institute of Technology

**Theme Name:** Agriculture, FoodTech & Rural Development



# Byte Bistro:

Empowering Restaurants with  
Data-Driven Dynamic Pricing  
and Real-Time Insights

*FoodTech*



# Idea/Approach Details

Our solution is to create an user-friendly platform that integrates a *dynamic pricing algorithm*, allowing restaurants and food outlets to input their menu items and *revolutionize the way business is conducted* based on *real-time* ingredient costs.

- Restaurant users will access their *personalized dashboard* and can input the list of ingredients for each dish on their menu along with their current selling prices.
- The website will *fetch real-time pricing data* for each ingredient from various sources, ensuring that restaurant owners have the most up-to-date cost information.
- Data analytics will *generate insights* from historical data and support *data-driven decision-making* for *optimizing profitability*.

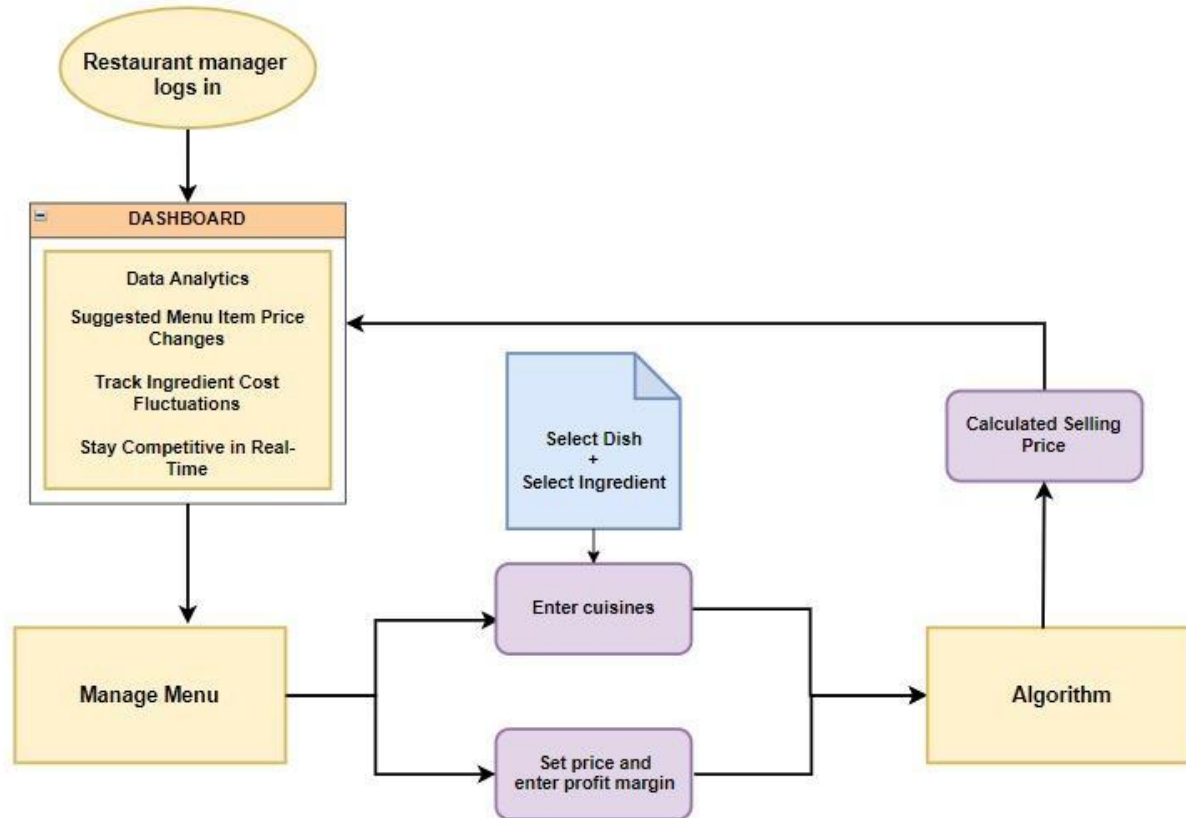




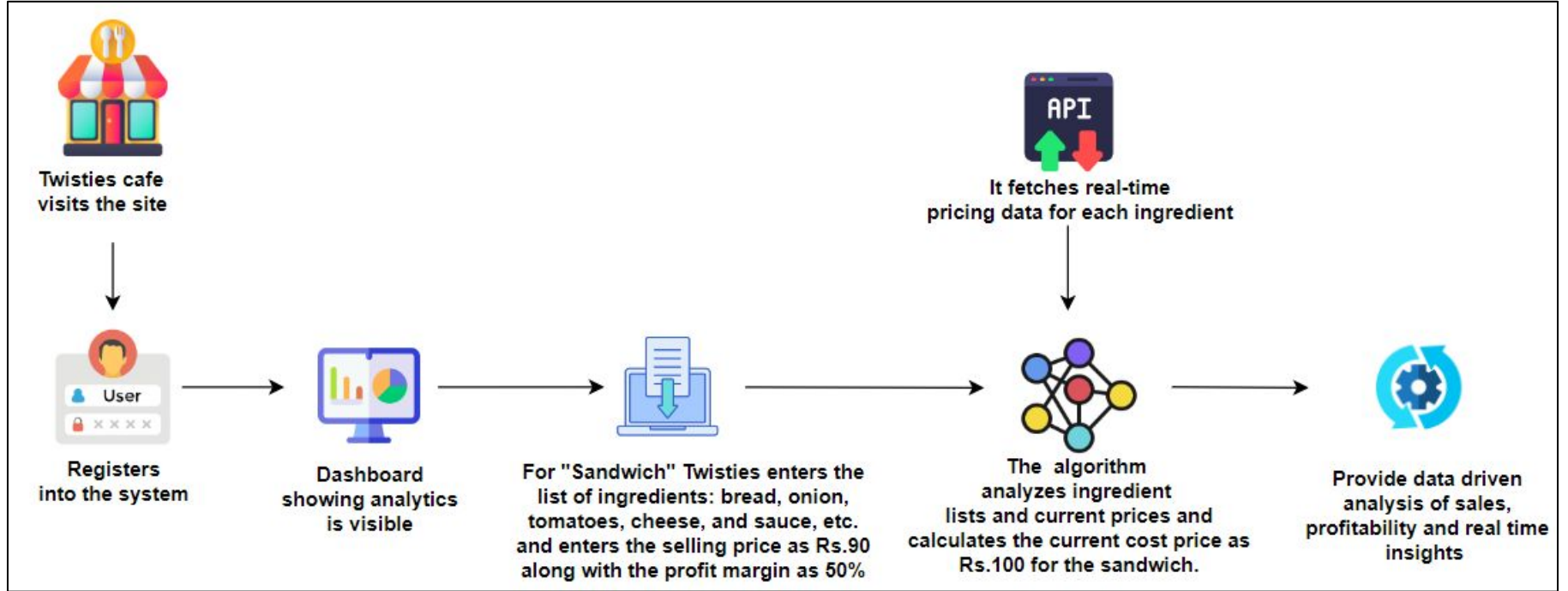
# Objectives

- Real-Time Revenue Insights.
- Recipe Costing.
- Preparedness of ingredients that are needed for the next day based on daily and monthly sales.
- Profit Margin Analysis.
- **OpenAI** Recommendations (Buy 1 get 1 Free, Coupons).
- **Multilingual Support.**
- **NGO Partnerships for Food Waste Prevention.**
- Inventory Management.
- Real-Time Alerts.
- **Collaboration between urban and local restaurants.**

# Methodology Diagram



# Use Case



# Technology Stack



## Front-End

React.js, Tailwind  
CSS, Vite



## Back-End

Firebase, Flask



## Data Analysis

Numpy, Scikit-learn,  
Pandas

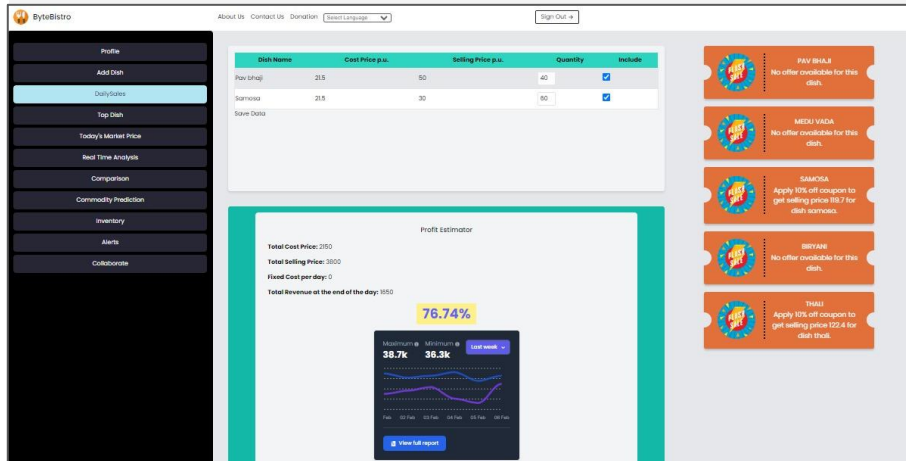


## APIs:

Agmarknet Govt Website, Open Government  
Data(OGD), National Agriculture Market (NAM),  
etc.

# Implementation

## Restaurant Dashboard - Daily Sales



## Menu and real-time calculation of cost prices

The 'Add Dish' form in the ByteBistro application allows users to add new dishes to the menu. The form is divided into two main sections: 'Pav Bhaji' and 'Fried Rice'. Each section includes a text input for the dish name, a button to 'Add Ingredient', and a table for listing ingredients with their quantities. Additionally, there are sections for 'Other Costs' and 'Number of Plates required- per day'.

**Pav Bhaji Section:**

- Dish Name: Pav Bhaji
- Ingredients:

Ingredient Name	Quantity
Onion	5
Tomato	5
Potato	5

**Fried Rice Section:**

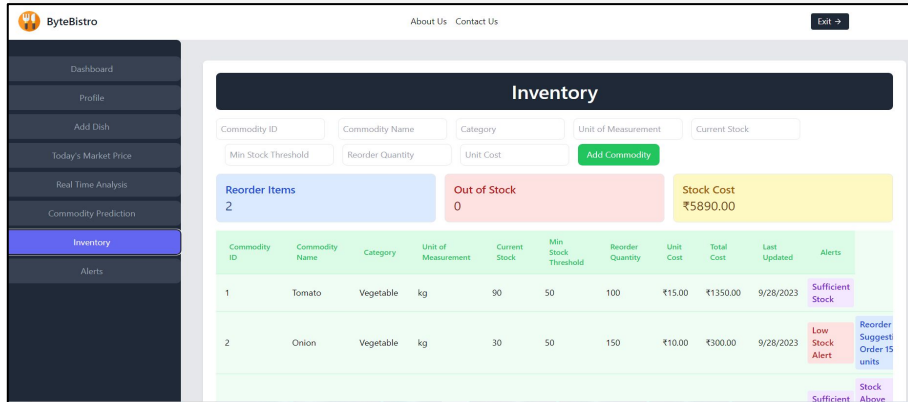
- Dish Name: Fried Rice
- Ingredients:

Ingredient Name	Quantity
Onion	2
Carrot	2
Capsicum	2

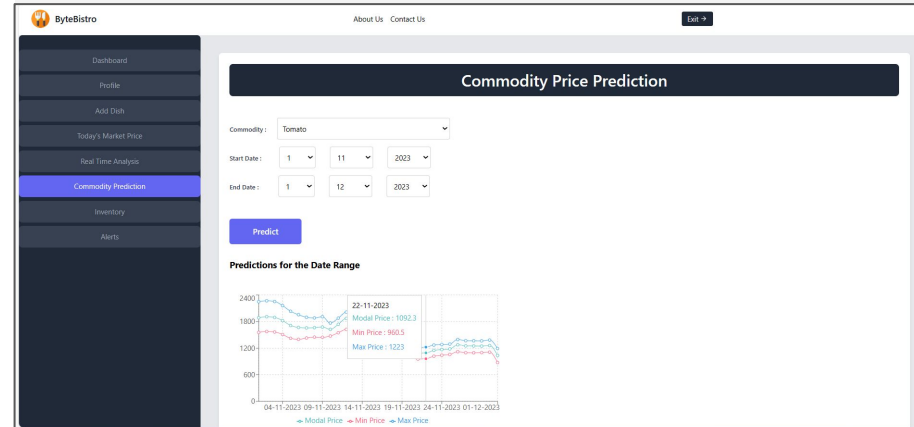


# Implementation

## Inventory Management



## Commodity Price Prediction



# Updates on 19th and 20th

1. **Web scrapped Agmarknet website** and created a function to append current data to the database continuously.
2. Profit Estimation page integrated with **Open AI and Pandas to suggest restaurants optimal offers** without any losses.
3. Created collaboration page between restaurants and NGOs.  
**Chat interface flag application**  
**(Social Development)**
4. **Automated mail generation for collaboration inquiry** between urban restaurants and bistros.  
**(Promote Authenticity and Rural Development)**
5. Working on **inventory management, to keep track of all commodities** as they are consumed in the dishes.





# Future Scope

## Agricultural Innovation:

Byte Bistro plans to integrate nearby farmer markets and prices, revolutionizing the agricultural sector.

## Direct Communication:

Restaurants can connect directly with farmers, cutting out middlemen and lowering costs.

## Fair Profits:

This feature ensures farmers receive a fair share of profits while benefiting restaurants.

# THANK YOU !

