

# AI BASED CALORIE SCAN & DIET PLAN

## Nutrition Calculator

The Nutrition Calculator provides nutrition details and micronutrient information for a food item based on an image or a food description.

Image Food Description

Upload Image



Process

Indian\_Veg\_Thali\_Joeg

Exercise Plan

The image shows a plate of Indian food arranged on a stainless steel thali. Here's a detailed description: 1. **Roti**: There are two pieces of flatbread (roti) placed on the plate. 2. **White Rice**: A serving of cooked white rice is present next to the roti. 3. **Vegetable Dishes**: - On the top left, there's a serving of yellow-green vegetable curry, likely made of gourds or similar vegetables. - Below it, another vegetable curry appears,

### Total Nutritions

Protein	Carbs	Fat	Calories
29.2g	143.5g	18.8g	978 kcal
Vitamins		Minerals	
Vitamin A: 90 µg		Calcium: 250 mg	
Vitamin C: 13.5 mg		Iron: 4.5 mg	

### Micronutrients

#### Vitamin A

DailyValue: 10% of Daily Value

Sources: Vegetable Curry,Potato

Curry,Dal, Functions: Good for vision,Supports immune system,

#### Vitamin C

DailyValue: 15% of Daily Value

Sources: Vegetable Curry,Potato Curry,

Functions: Antioxidant,Improve s immune function,

#### Calcium

DailyValue: 20% of Daily Value

Sources: Kadhi,Dal,

Functions: Bone health,Teeth health,

#### Iron

DailyValue: 25% of Daily Value

Sources: Roti,Dal,

Functions: Red blood cell formation,Increase energy,

### Foods

#### Roti: Medium size food

Protein	Carbs	Fat	Calories
2.9g	15g	0.4g	71 kcal

Nutrition description: 1 medium roti typically has 71 calories, 2.9g protein, 15g carbs, 0.4g fat.

#### White Rice: Medium size food

Protein	Carbs	Fat	Calories
4.3g	44.5g	0.4g	206 kcal

Nutrition description: 1 cup of cooked white rice has about 206 calories, 4.3g protein, 44.5g carbs, 0.4g fat.

#### Vegetable Curry: Medium size food

Protein	Carbs	Fat	Calories
3g	20g	7g	150 kcal

Nutrition description: Assumed an average vegetable curry serving size containing 150 calories, 3g protein, 20g carbs, 7g fat.

## AI BASED CALORIE SCAN



## Diet Plan

The Diet Plan feature provides a custom diet plan for a day or a week based on the user's preferences.

Age\*

28

Gender\*

Male

Weight\*

74

Meals a day\*

6

Medical Condition\*

Hypertension

Allergy

Allergy detail

Health Goal\*

Weight gain

Food Type\*

Non-Vegetarian

Ethnicity

Punjabi

Diet for a Day

Weekly Diet Plan

Day 1

**Early Morning:** Honey Lemon Water with Almonds

Ingredients: 1 glass warm water,1 tablespoon honey,1 tablespoon lemon juice,5-6 almonds,

**Breakfast:** Aloo Paratha with Yogurt

Ingredients: 2 whole wheat parathas,1 large potato,1 teaspoon cumin seeds,Salt to taste,1/2 cup plain yogurt,

**Mid Morning:** Fruit Smoothie

Ingredients: 1 banana,1/2 cup strawberries,1/2 cup milk,1 tablespoon chia seeds,

**Lunch:** Grilled Chicken with Brown Rice

Ingredients: 200g chicken breast,1 cup brown rice,1 teaspoon olive oil,Salt and pepper to taste,1 cup mixed vegetables,

**Mid Evening:** Cucumber Sandwich

Ingredients: 2 slices whole grain bread,1 cucumber,1 tablespoon cream cheese,Salt and pepper to taste,

**Dinner:** Rajma Chawal

Ingredients: 1 cup red kidney beans,1 cup basmati rice,1 onion,2 tomatoes,1 teaspoon ginger-garlic paste,1 teaspoon garam masala,Salt to taste,

### AI Diet Chart Creation:

AI-powered diet charts personalize meal plans based on health goals, preferences, medical needs & ethnicity ensuring balanced nutrition.

## INTRODUCTION

A Calorie Scan System is an AI-powered tool that enables users to quickly estimate the nutritional value—especially calorie content—of food items by scanning them using a smartphone camera or barcode reader. Combining computer vision, machine learning, and nutrition databases, it simplifies food tracking and promotes healthier lifestyle choices through real-time insights.

## HOW IT WORKS

**Image or Barcode Input** – Users scan a food item using their phone camera or barcode scanner.

**AI Recognition Engine** – Uses computer vision or barcode lookup to identify the food item and its portion size.

**Nutrition Matching** – Cross-references the recognized item with a nutrition database (e.g., USDA, branded databases).

**Calorie & Nutrient Estimation** – Calculates estimated calorie count and other nutritional values (carbs, fats, proteins, etc.).

**Feedback & Tracking** – Displays insights in real time and optionally logs the data into a food diary or health dashboard.

## KEY FEATURES

**AI-Powered Food Recognition** – Detects common meals, ingredients, and portion sizes via image analysis.

**Barcode & QR Scan Support** – Instantly fetches nutritional information for packaged items.

**Custom Portion Control** – Adjusts calorie estimates based on quantity or portion selected by user.

**Nutrient Breakdown** – Provides macronutrient and micronutrient insights along with calories.

**Diet Compatibility Alerts** – Flags items that conflict with selected diets (e.g., keto, low-carb, diabetic-friendly).

**Logging & History** – Tracks daily intake, trends, and progress over time.

**Voice & Text Input Options** – Enables manual entry or voice-based food logging for flexibility.

## TECHNOLOGIES USED

**Computer Vision** – Recognizes food types and portions from images.

**Machine Learning (ML)** – Improves recognition accuracy over time using user feedback.

**Natural Language Processing (NLP)** – Supports food logging via text or voice descriptions.

**Nutritional Databases** – Pulls verified data from global food nutrition repositories.

**Cloud Integration** – Enables syncing across devices, platforms, and wearables.

**APIs & IoT Support** – Connects with health trackers, fitness apps, or smart kitchen devices.

## APPLICATIONS

**Personal Health & Fitness** – Helps individuals monitor caloric intake and maintain dietary goals.

**Clinical Nutrition** – Supports dietitians and healthcare providers in patient dietary assessments.

**Fitness & Wellness Apps** – Enhances app functionality with real-time food scanning and tracking.

**Smart Kitchens** – Integrated with smart appliances for automated meal tracking.

**Weight Management Programs** – Provides evidence-based insights for weight loss or gain plans.

## BENEFITS

**Real-Time Feedback** – Immediate calorie and nutrition info at the point of decision-making.

**Ease of Use** – Scanning replaces manual entry, reducing friction and increasing engagement.

**Improved Accuracy** – Reduces guesswork in portion sizes and nutrition content.

**Behavioral Insights** – Helps users understand eating patterns and improve diet habits.

**Health Empowerment** – Encourages mindful eating through instant knowledge and tracking.

## CHALLENGES & LIMITATIONS

**Visual Ambiguity** – Similar-looking foods may yield inaccurate results (e.g., fried tofu vs. paneer).

**Portion Estimation Difficulty** – Estimating food volume from images is still complex.

**Database Gaps** – Some regional or homemade foods may not exist in standard databases.

**User Compliance** – Effectiveness depends on user engagement and consistent usage.

**Privacy Concerns** – Storing dietary data must comply with data protection laws (e.g., HIPAA, GDPR).

## FUTURE TRENDS

**3D Food Scanning** – Using depth sensors for better portion size detection.

**Integration with Wearables** – Syncing calorie intake with calorie expenditure for real-time balance.

**Personalized Nutrition AI** – Offering meal suggestions tailored to biometric data and preferences.

**Augmented Reality (AR) Feedback** – Showing nutritional overlays on food via AR glasses or screens.

**Voice-Activated Nutrition Coaches** – Real-time coaching based on dietary logs.

## CONCLUSION

AI-based Calorie Scanning is revolutionizing personal nutrition by making food tracking seamless, accurate, and insightful. It bridges the gap between dietary intentions and real-world eating habits—empowering individuals to make smarter food choices and achieve their health goals with confidence.