

# Hackathon Abstract Submission

## 1. Project Title

AI-Powered Personalized Medication Assistant

## 2. Problem Statement

Many patients struggle with medication adherence, dosage schedules, and potential drug interactions, leading to serious health risks.

Additionally, in emergencies, patients often lack immediate access to doctors or hospital routes, which can delay critical care.

## 3. Proposed Solution

Our solution is an AI-powered mobile/web application that:

- Uses computer vision to recognize pills from images
- Provides AI-driven medication reminders and schedules
- Offers a voice-enabled chatbot for dosage and drug interactions
- Sends real-time alerts to caregivers when a patient misses a dose
- Integrates a doctor contact directory for instant consultation
- Uses Google Maps API to guide users to the nearest hospitals

## 4. Technology Stack

- Frontend: React (Google Maps API for hospital navigation)
- Backend: Node.js / Python (Flask or FastAPI)
- AI Models: TensorFlow/PyTorch (for pill recognition)
- Database: Firebase / MongoDB
- APIs & Integrations:

- OpenFDA API (drug information)
- Twilio API (medication alerts)
- BetterDoctor API (doctor contact details)
- Google Maps API (hospital route guidance)

## 5. Innovation & Uniqueness

- Pill Recognition AI: Unlike traditional medication trackers, our system identifies pills through computer vision, reducing manual input errors.
- AI-Powered Dosage Optimization: Uses health history and interactions to create dynamic medication schedules.
- Emergency Support Features: Unlike existing solutions, our app integrates doctor contacts and hospital navigation for critical situations.

## 6. Target Audience & Impact

### Target Users:

- Patients with chronic illnesses (diabetes, hypertension, etc.)
- Elderly individuals needing medication adherence support
- Caregivers and healthcare providers

### Impact:

- Reduces medication non-adherence issues
- Prevents adverse drug interactions
- Enables faster access to doctors and hospitals in emergencies

## 7. Implementation Approach

- Train a deep learning model to recognize pills using an image dataset.
- Develop a React frontend with a user-friendly medication management interface.

- Build a Flask/FastAPI backend to handle AI processing and reminders.
- Integrate APIs (OpenFDA, Twilio, BetterDoctor, Google Maps) for real-time data.
- Optimize the chatbot for natural language medication queries.

## 8. Theme Relevance

- AI in Healthcare: Uses AI & computer vision for smart prescription management.
- Health Accessibility: Integrates doctor contacts & hospital routes for emergency support.
- IoT & Mobile Health: Uses mobile notifications, alerts, and GPS tracking to enhance patient care.

## 9. Team Information

Team Name: [Your Team Name]

Team Members:

- Rudra Pratap Singh - Backend Developer / AI-ML
- Neil Sen Easow - Frontend / UI/UX Designer
- Vinayak Prakash - Backend Developer / AI-ML
- Nandhu Babu - Frontend Developer