

# **1. Project Title: Smart AI-Powered Customer Support Chatbot**

## **2. Problem Statement**

Small businesses struggle to offer 24/7 customer support due to limited resources and manpower. Customers often face delayed responses, leading to dissatisfaction and potential loss of business. There is a need for a cost-effective, intelligent support solution that can automatically handle frequent customer queries in real time.

## **3. Project Description**

This project aims to develop a web-based, AI-powered chatbot that automatically answers customer queries using a company's existing FAQ and help documents. It leverages Natural Language Processing (NLP) and state-of-the-art Language Models (LLMs) to understand and respond to questions in natural human language.

The system uses Retrieval-Augmented Generation (RAG) to fetch relevant content from a knowledge base (FAQ/help docs), which is then passed to the LLM for generating precise responses. It is designed to be easy to deploy for small businesses via a web interface and does not rely on third-party messaging platforms like WhatsApp.

## **4. Problem It Solves**

- Eliminates the need for round-the-clock human agents for common queries.
- Offers instant, accurate responses to customers.
- Reduces operational cost for small businesses.
- Improves customer satisfaction through fast, intelligent support.
- Allows businesses to scale support without scaling human resources.

## 5. Abstract

This project presents a **Smart AI-Powered Customer Support Chatbot**, designed specifically for small businesses to provide automated, intelligent, and real-time responses to customer queries. Built as a web-based interface, the system uses a Retrieval-Augmented Generation (RAG) architecture to combine information retrieval from company FAQs and help documents with the generative capabilities of advanced Large Language Models (LLMs) such as GPT or Mistral.

The chatbot processes user queries through a natural language interface, retrieves the most relevant content from the knowledge base, and formulates context-aware responses using the LLM. By automating frequent customer support interactions, the system significantly reduces the workload on human agents and ensures that customers receive timely and accurate support — all without relying on platforms like WhatsApp or external messaging tools.

The chatbot is built to be lightweight, easily deployable on a business's website, and customizable to different industries. It addresses the critical challenge of affordable and scalable customer support, empowering small businesses with enterprise-level AI capabilities.