# SERVEFLOW AI Next-Generation Intelligent AI Based Services Aggregator

**A THESIS SUBMITTED**

**BY**

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To

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**ABSTRACT**

The modern on-demand service economy suffers from inefficiencies related to inaccurate matching, lack of contextual understanding, and delayed service fulfillment. Traditional service platforms rely heavily on keyword-based listings, which fail to capture the real-world complexity of service requests.

ServeFlow AI addresses this problem by integrating **Multimodal Generative AI (Vision + Text)** with a **Context-Aware Geospatial Matching Engine**. By leveraging Google Gemini for visual and textual analysis, the system generates high-fidelity technical directives from user-submitted descriptions and site images. These directives enable accurate provider matching based on skill relevance, proximity, availability, and reputation.

The proposed system significantly reduces time-to-hire, improves trust, and enhances operational efficiency within the service marketplace ecosystem.

## ****TABLE OF CONTENT****

ACKNOWLEDGEMENT  
ABSTRACT

**CHAPTER # 1 INTRODUCTION**

1. Introduction  
   1.1 Background  
   1.2 Problem Statement  
   1.3 Objectives  
   1.4 Research Questions  
   1.5 Scope of Study

**CHAPTER # 2 LITERATURE REVIEW**  
2.1 Overview  
2.1.1 AI-Driven Service Marketplaces  
2.1.2 Multimodal AI in Context Analysis  
2.2 Geospatial Matching Systems  
2.3 Literature Analysis

**CHAPTER # 3 SYSTEM REQUIREMENTS & METHODOLOGY**  
3.1 Overview  
3.2 Functional Requirements  
3.3 Non-Functional Requirements

**ANNEXURE**

Figure 1: Context Diagram  
Figure 2: System Block Diagram  
Figure 3: Actor Diagram  
Figure 4: Data Flow Diagram  
Figure 5: Sequence Diagram  
Figure 6: UML Diagram  
Figure 7: Entity Relationship Diagram

**CHAPTER 1:**

**INTRODUCTION**

ServeFlow AI is a next-generation intelligent service aggregation platform designed to bridge the contextual gap between service seekers and providers. By utilizing AI-driven analysis and geospatial intelligence, the platform enhances service accuracy, response time, and user satisfaction.

## ****1.1 BACKGROUND****

The service marketplace industry faces persistent challenges such as inefficient provider discovery, lack of transparency, and miscommunication between users and professionals. Existing platforms do not adequately differentiate between similar service requests with varying technical scopes.

## ****1.2 PROBLEM STATEMENT****

Traditional service platforms rely on static listings and keyword matching, resulting in irrelevant recommendations and delayed hiring processes. Users are required to manually filter results, increasing frustration and reducing trust in digital service systems.

## ****1.3 OBJECTIVES****

* To design an AI-driven service matching system
* To reduce service hiring time using contextual intelligence
* To integrate multimodal AI for visual and textual understanding
* To improve trust and accuracy in service recommendations

## ****1.4 RESEARCH QUESTIONS****

* How can multimodal AI improve service context understanding?
* Can geospatial intelligence reduce service response time?
* How effective is AI-based scoring in provider matching accuracy?

## ****1.5 SCOPE OF STUDY****

The scope of this research includes AI-powered service request analysis, real-time provider matching, and system scalability using modern web technologies. Payment systems and large-scale deployment are outside the current scope.

**CHAPTER # 2:**

## ****2.1 OVERVIEW****

This chapter reviews existing service marketplace platforms, AI-based matching systems, and geospatial algorithms relevant to intelligent service aggregation.

## ****2.1.1 AI-DRIVEN SERVICE MARKETPLACES****

Modern platforms attempt automation but lack deep contextual understanding. AI adoption remains limited to recommendation filtering rather than semantic interpretation.

## ****2.1.2 MULTIMODAL AI IN CONTEXT ANALYSIS****

Recent advancements in Generative AI, particularly vision-enabled language models, allow systems to analyze images alongside text, enabling deeper problem understanding.

## ****2.2 GEOSPATIAL MATCHING SYSTEMS****

Geospatial algorithms such as Haversine distance calculations enable efficient provider proximity ranking, improving response efficiency.

## ****2.3 LITERATURE ANALYSIS****

The reviewed literature highlights a gap in combining multimodal AI with real-time geospatial intelligence—an area ServeFlow AI directly addresses.

**CHAPTER # 3:**

## ****3.1 OVERVIEW****

ServeFlow AI follows a service-oriented architecture supported by Agile development methodology to ensure modularity and scalability.

## ****3.2 FUNCTIONAL REQUIREMENTS****

* User registration and authentication
* AI-based service request analysis
* Provider matching and ranking
* Real-time notifications via WebSockets
* Job status tracking

## ****3.3 NON-FUNCTIONAL REQUIREMENTS****

* High system availability
* Low response latency
* Secure data handling
* Scalability and fault tolerance

**ANNEXURE**