

Unified AI Command Centre – Project Brief

1. Objective

Build a **centralized AI-driven communication system** that manages all **WhatsApp (text and voice) and email communication** for GharPey. The system must **intelligently understand and respond to replies from users** (employers and maids) in **Kannada, Hindi, Nepali, and English**.

Context: You are leading the Tech and Communications division of a Silicon Valley-grade company, GharPey. Your mission is to build the world's first Unified AI Command Centre capable of autonomously managing communication for millions using voice/text understanding, workflow intelligence, and automated decision-making.

2. Core Features (Scope)

A. Admin Notification Dashboard

- Send WhatsApp messages (text or voice)
- Send automated or manual emails
- Manage onboarding workflows
- Trigger salary reminders
- View conversation history
- Manage message templates

B. Notification & Workflow Engine

- WhatsApp sender API
- Email sender API
- Text-to-Speech (TTS) generation
- Automatic Speech Recognition (ASR)
- Event-based and scheduled workflows
- Delivery logs and analytics

C. Intelligent Reply System (AI Layer)

- Intent detection
- Language detection

- Sentiment classification
- Auto-response engine
- Voice reply handling
- Escalation logic

3. Technical Requirements

Backend: FastAPI, Flask, or Node.js

Frontend: React, Next.js, or Flutter Web

Database: MySQL, PostgreSQL, or SQLite

Required Tables:

- users
- workflows
- workflow_instances
- notifications
- templates
- conversations

4. Required Deliverables

A. Functional Deliverables

- Working dashboard UI
- Backend APIs
- TTS integration
- ASR support
- State management
- Workflow automation

B. AI Deliverables

- Intent classifier
- Sentiment analysis module
- Auto-response engine

C. Documentation

- README
- Flow diagrams
- Workflow charts
- Sample message library

5. Evaluation Criteria

Completeness – 25%

UX – 20%

Multilingual support – 20%

Backend/API design – 15%

Intelligence layer – 10%

Documentation – 10%

6. Submission & Contact Details

Submission: GitHub repository link containing all deliverables

Contact: WhatsApp +91 9791465079 or email adarsh@gharpey.in

More details for the project below.

Expanded Project Description: Omni-Channel Communication Hub with Intelligent Replies

This system consolidates all communication into one unified interface.

1. Core Problem to Solve

- Send notifications such as welcome messages, onboarding prompts, salary reminders, UPI/document reminders.
- Handle two-way WhatsApp conversations (text or voice), understanding and responding intelligently.
- Operate in Kannada, Hindi, Nepali, and English with TTS (outgoing) and ASR (incoming).

2. Major Components

A. Admin Notification Dashboard (Web UI)

- Send WhatsApp text, WhatsApp voice, or email
- Choose user segments (e.g., "salary due soon")
- Select message templates (welcome, onboarding, payment reminders)
- Define flows: welcome flow, follow-up flow, salary reminder flow, document missing flow
- View user conversations, last reply, workflow stage, delivery metrics
- Manage multi-language templates with variables such as {name}, {maid_name}, {salary_amount}, {due_date}

B. Notification & Workflow Engine (Backend)

- Integrates with WhatsApp API and email services
- Sends text and TTS-generated voice messages
- Event-based and scheduled workflow triggers
- Logs every notification, delivery, and error state
- Tracks workflow progress for each user

C. AI Reply Brain – Intelligent Response Engine

- Handles all inbound text and voice replies
- Converts voice replies via ASR into text

- Detects user language and responds in the same language
- Classifies intent: completion, confusion, insurance queries, UPI questions, Smart Backup requests, opt-out etc.
- Sentiment detection to identify confusion or frustration
- Response strategy:
 - Next-step explanations for onboarding
 - Shortened guidance if user expresses confusion
 - Human escalation when needed
 - Workflow progression updates when user completes a step

D. TTS + ASR Integrations

- TTS to generate voice messages in Kannada, Hindi, Nepali, and English
- ASR to convert voice replies into text for understanding
- Students may use open-source models or simulate via mock services

3. Data Model

Key tables include:

- users
- workflows
- workflow_instances
- notifications
- templates
- conversations
- intents

4. Concrete Deliverables

A. Functional System

- Dashboard with user view and workflow status
- Outbound engine (WhatsApp, voice, email)

- Inbound webhook for WhatsApp replies (text and audio)
- Intent detection and reply generation
- Multi-step onboarding workflows

B. AI Layer

- Intent detection
- Language identification
- Sentiment tagging
- Policy rules for response generation

C. Documentation & UX Artefacts

- Interaction flow diagrams for onboarding, salary reminders, documents
- README with setup steps
- Example message-response transcripts
- Demo video (recommended)