Project Design Phase

# Solution Architecture

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| Date | 26 JUNE 2025 |
| Team ID | LTVIP2025TMID59973 |
| Project Name | Citizen AI – Intelligent Citizen Engagement Platform |
| Maximum Marks | 4 Marks |

## Solution Architecture Overview

Citizen AI is a centralized, AI-driven civic engagement platform enabling citizens to report local issues while ensuring governments can respond efficiently and transparently.  
  
This architecture bridges the gap between the civic issue reporting process and the government resolution mechanism using cloud infrastructure, machine learning, and multichannel user interfaces.

## Architecture Goals

- Provide a scalable, modular solution for intelligent civic engagement.  
- Integrate AI to classify, prioritize, and route citizen issues automatically.  
- Deliver real-time status tracking and multilingual chatbot support.  
- Enable feedback collection, analytics, and reporting dashboards.  
- Support both web and mobile accessibility with secure data handling.

## Key Components

- Frontend Interface: Mobile (Flutter), Web (React) for citizen input and dashboards.  
- Backend Services: Node.js / Express-based microservices managing submissions, users, and tracking.  
- AI Engine: ML model (TensorFlow / Scikit-learn) for issue classification; NLP-based chatbot (Rasa / OpenAI).  
- Databases: PostgreSQL for structured data; AWS S3 / Google Cloud Storage for media.  
- Authentication & Security: OAuth 2.0, JWT, IAM for role-based access.  
- Cloud Infrastructure: Kubernetes on AWS/GCP for deployment, scalability, and high availability.

## Solution Architecture Diagram

You can sketch or create a diagram with the following flow:  
1. Citizen Interface  
2. API Gateway  
3. Authentication Service  
4. Issue Submission Microservice  
5. AI Classification Module  
6. Routing to Government Department Services  
7. Feedback & Notification Service  
8. Admin Dashboard & Reporting  
  
Data flow and Architecture Example.

