
	<p style="text-align: center;"><b>Pimpri Chinchwad Education Trust's</b> <b>Pimpri Chinchwad College of Engineering</b></p>	
<b>Marking Scheme (Internal Evaluation-I) with Rubrics</b>		
<b>Department:</b> Civil Engineering	<b>Academic Year:</b> 2024 -2025	<b>Semester:</b> II
<b>Marking Scheme (Formative Assessment-I)</b>		
<b>Year and Div.:</b> T.Y (B. Tech)	<b>Maximum Marks:</b> 20	
<b>Subject:</b> Smart Cities and Building Automations (BCI6604.A)	<b>Duration:</b> NA	
<b>Note:</b>  BCI6604.A.1– To understand the concept of smart cities and associated challenges BCI6604.A.2-To understand latest technologies used in intelligent building		

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### **Title :**

**Digital Public Complaint System: A Smart Approach for Addressing Public Issues**

### **Description :**

In recent years, as urbanization continues to expand and technology permeates various sectors, one area that has greatly benefited from digital advancements is public service. A crucial aspect of effective governance and community management is addressing the concerns of citizens efficiently and promptly. The Smart City Digital Public Complaint System is an advanced web-based platform designed to empower citizens to report urban infrastructure issues such as potholes, broken streetlights, water supply failures, and other public concerns. The system facilitates real-time tracking, AI-driven categorization, and efficient management of complaints to improve city administration and enhance public engagement.

The platform operates through a user-friendly interface, allowing citizens to register complaints along with images and GPS-based locations, ensuring precise issue identification. AI-based categorization helps in assigning complaints to the appropriate department, reducing manual intervention and speeding up the resolution process. Users can monitor the progress of their complaints through a dedicated dashboard, while municipal authorities can access an admin panel to manage reports, assign tasks, and generate analytics for better decision-making.

The system enhances transparency by keeping citizens informed through real-time notifications and status updates. By integrating smart city principles, this solution aims to create a more efficient, responsive, and accountable municipal infrastructure, ultimately improving the quality of urban life.

### **Proposed Tools Used :**

**The following tools and technologies will be employed to build and deploy the system:**

#### **Frontend:**

- React.js – To build an interactive and dynamic user interface, ensuring a seamless experience across devices.
- Google Maps API – To enable precise location tagging of complaints, allowing authorities to locate issues effectively.

#### **Backend:**

- Node.js & Express.js – For handling server-side operations and managing API requests efficiently.
- MongoDB – A NoSQL database to store user complaints, track their status, and manage system data.
- Multer & Cloudinary – For handling image uploads and securely storing complaint-related visuals in the cloud.

#### **AI & Automation:**

- TensorFlow.js or OpenAI API – To enable AI-based complaint classification, reducing manual effort and ensuring accurate routing of issues.
- Socket.io – For real-time updates on complaint status, allowing users and authorities to track progress efficiently.
- Nodemailer – For sending automated email notifications regarding complaint updates, ensuring users stay informed.

### **Security & Authentication:**

- JWT (JSON Web Token) – To implement secure authentication, allowing role-based access for users, administrators, and municipal staff.

### **Deployment & Hosting:**

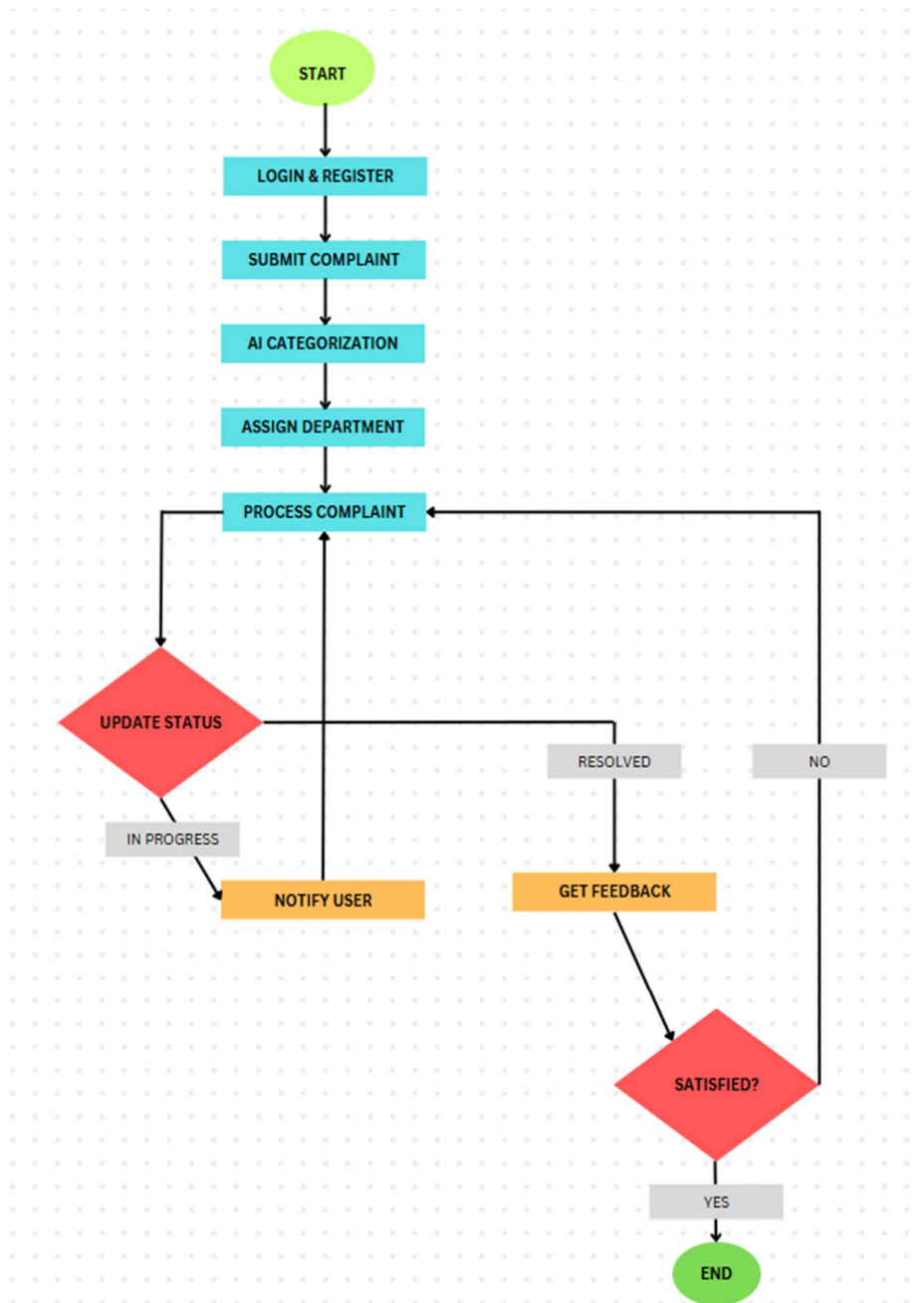
- Vercel/Netlify – To ensure seamless frontend deployment with high availability and scalability.
- Render/Heroku – To host the backend server, facilitating smooth API integration.
- MongoDB Atlas – A cloud-based database solution for secure, scalable, and efficient data management.

## **Methodology :**

**The development of the Cycling and Walking Route Planner will follow these key stages:**

1. User Registration & Login: Citizens create an account and securely log into the system.
2. Complaint Submission: Users submit complaints with supporting images and GPS-based location tagging.
3. AI-Based Categorization: The AI model classifies complaints into relevant categories such as Road, Electrical, Water Supply, etc.
4. Complaint Processing: The municipal authority reviews complaints, assigns them to the appropriate department, and updates complaint statuses (Pending, In Progress, Resolved).
5. Progress Tracking: Users receive real-time updates and track the status of their complaints via dashboards and notifications.
6. Admin Dashboard: Authorities manage complaints, assign municipal teams, and oversee resolution timelines to ensure accountability.
7. Reports & Analytics: The system generates detailed reports and insights into complaint trends, helping city planners optimize urban development efforts.

## Flowchart :



## Expected Outcomes :

- **Faster issue resolution** by streamlining complaint registration and response workflows, ensuring quicker government intervention.
- **Enhanced transparency** through real-time status updates and automated notifications to users.
- **Automated categorization of complaints** using AI, reducing the burden on human operators and ensuring accurate complaint routing.

- **Increased citizen engagement** by providing a digital platform where users can actively track and participate in complaint resolution.
- **Data-driven decision-making** by municipal authorities, enabling better planning and resource allocation for urban development.
- **Efficient resource allocation** through intelligent prioritization of complaints based on severity, location, and category.
- **Improved public satisfaction** as residents experience a more responsive and accountable municipal governance system.

### **Observation / Conclusion :**

The Smart City Digital Public Complaint System revolutionizes urban issue reporting by integrating automation, real-time tracking, and AI-powered complaint categorization. This system enhances citizen participation, government accountability, and municipal efficiency, ensuring a seamless communication channel between residents and city authorities.

By leveraging smart technology, cities can proactively address infrastructure challenges, predict emerging issues through analytics, and foster a more sustainable and responsive urban ecosystem. The system also strengthens public trust by ensuring that every complaint is addressed transparently and efficiently. Furthermore, the platform's scalability allows it to be expanded across different cities, adapting to varying urban needs and governance structures.

This initiative contributes significantly to smart city development, enabling authorities to maintain public infrastructure effectively while keeping citizens engaged in civic development. The system ultimately leads to a well-managed urban environment, improving the overall quality of life for citizens and paving the way for more innovative, technology-driven governance.

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