

Project Report: Service Desk for Customer Complaint Resolution

PROJECT TEAM DETAILS

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1. INTRODUCTION

1.1 Project Overview

The Service Desk Application is a full-stack web-based complaint management system designed to streamline the lifecycle of service requests. It provides a centralized platform for users to register complaints, for agents to respond and resolve issues, and for administrators to manage roles and oversee the overall operations.

1.2 Purpose

The purpose of this report is to document the entire development cycle of the Service Desk Application—from ideation to deployment. It outlines problem identification, solution design, requirement specifications, planning, development, and testing to provide a holistic understanding of the system.

2. PROJECT OVERVIEW

2.1 Purpose

ResolveNow is a comprehensive platform that streamlines complaint handling and service request management for organizations. It bridges the communication gap between users and agents, offers real-time tracking, and provides administrative oversight tools.

2.2 Features

- Secure JWT-based authentication for multiple roles (user, agent, admin)
- Complaint registration and live tracking
- Real-time messaging via Socket.io
- Role-based dashboards
- Complaint assignment and status update system
- Admin panel for user and agent management

3. SYSTEM ARCHITECTURE

3.1 Frontend

- Built with React.js and Tailwind CSS
- Role-based components under `src/components/` for client, technician, and supervisor
- Real-time updates using WebSockets (Socket.io-client)
- Reusable UI elements (forms, dashboards, communication windows)

3.2 Backend

- Developed using Node.js and Express.js
- Organized in modular folders (models, routes, middleware)
- RESTful API endpoints secured with JWT middleware
- Real-time communication using Socket.io

3.3 Database

- MongoDB with Mongoose ODM
- **Collections:** users, complaints, messages
- **Schemas:**
 - `User.js`: name, email, password (hashed), role
 - `Complaint.js`: subject, description, status, assigned agent, timestamps
 - `Message.js`: sender, recipient, message text, timestamps

4. SETUP INSTRUCTIONS

4.1 Prerequisites

- Node.js (v16+)
- MongoDB installed or hosted (e.g., MongoDB Atlas)
- Git

4.2 Installation

- Clone the repository
 - `git clone https://github.com/EswarAdeshCh/Service_Desk.git`
 - `cd Service_Desk`
- Setup backend
 - `cd backend`
 - `npm install`
 - `touch .env`
 - # Add MongoDB URI, JWT_SECRET, etc. in .env
- Setup frontend
 - `cd ../frontend`
 - `npm install`

5. FOLDER STRUCTURE

5.1 Client (Frontend)

```
frontend/  
├── public/  
│   └── placeholder images and index.html  
├── src/  
│   ├── components/  
│   │   ├── auth/  
│   │   │   ├── AuthenticationPage.jsx  
│   │   │   └── RegistrationPage.jsx  
│   │   ├── client/  
│   │   │   ├── ClientPortal.jsx  
│   │   │   ├── IssueSubmissionForm.jsx  
│   │   │   └── IssueTracker.jsx  
│   │   ├── common/  
│   │   │   ├── CommunicationWindow.jsx  
│   │   │   └── WelcomePage.jsx  
│   │   ├── supervisor/  
│   │   │   ├── ClientManagement.jsx  
│   │   │   ├── SupervisorHub.jsx  
│   │   │   └── TechnicianManagement.jsx  
│   │   └── technician/  
│   │       └── TechnicianWorkspace.jsx  
├── app.jsx  
└── index.js
```

5.2 Server (Backend)

```
backend/  
├── middleware/  
│   └── auth.js  
├── models/  
│   ├── Complaint.js  
│   ├── Message.js  
│   └── User.js  
├── routes/  
│   ├── admin.js  
│   ├── agents.js  
│   ├── auth.js  
│   ├── complaints.js  
│   ├── messages.js  
│   └── users.js  
└── server.js
```

6. RUNNING THE APPLICATION

6.1 Frontend

```
cd frontend  
npm start
```

6.2 Backend

```
cd backend  
npm start
```

7. AUTHENTICATION

7.1 Token-based Authentication

- JWTs issued during login
- Stored in localStorage/cookies on frontend
- `auth.js` middleware verifies tokens and grants role-based access

7.2 Password Encryption

- Bcrypt used to hash user passwords before storing in MongoDB

8. USER INTERFACE

8.1 Role-based Pages

- **Login/Registration Pages**
- **User Dashboard:** Complaint submission and tracking
- **Agent Dashboard:** Assigned complaints and chat interface
- **Admin Dashboard:** Complaint assignment, user/agent management

9. TESTING

9.1 Manual Testing Tools

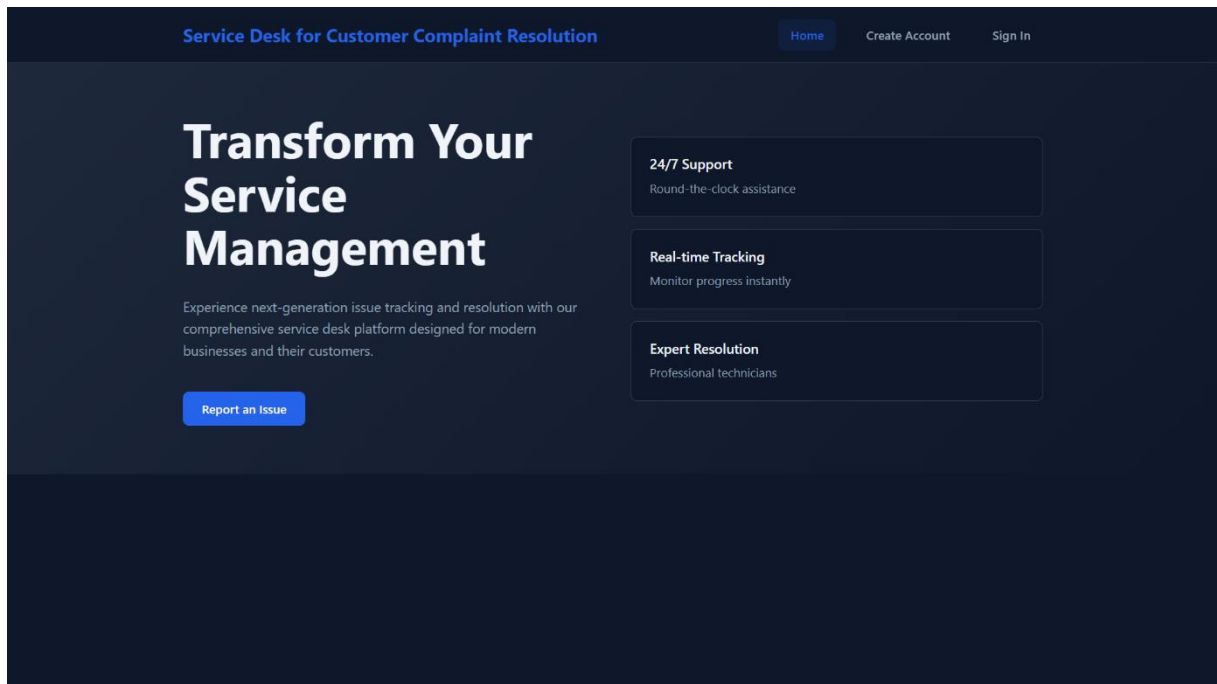
- Postman (API testing)
- Browser DevTools (UI & WebSocket testing)

9.2 Automated Testing (Future Scope)

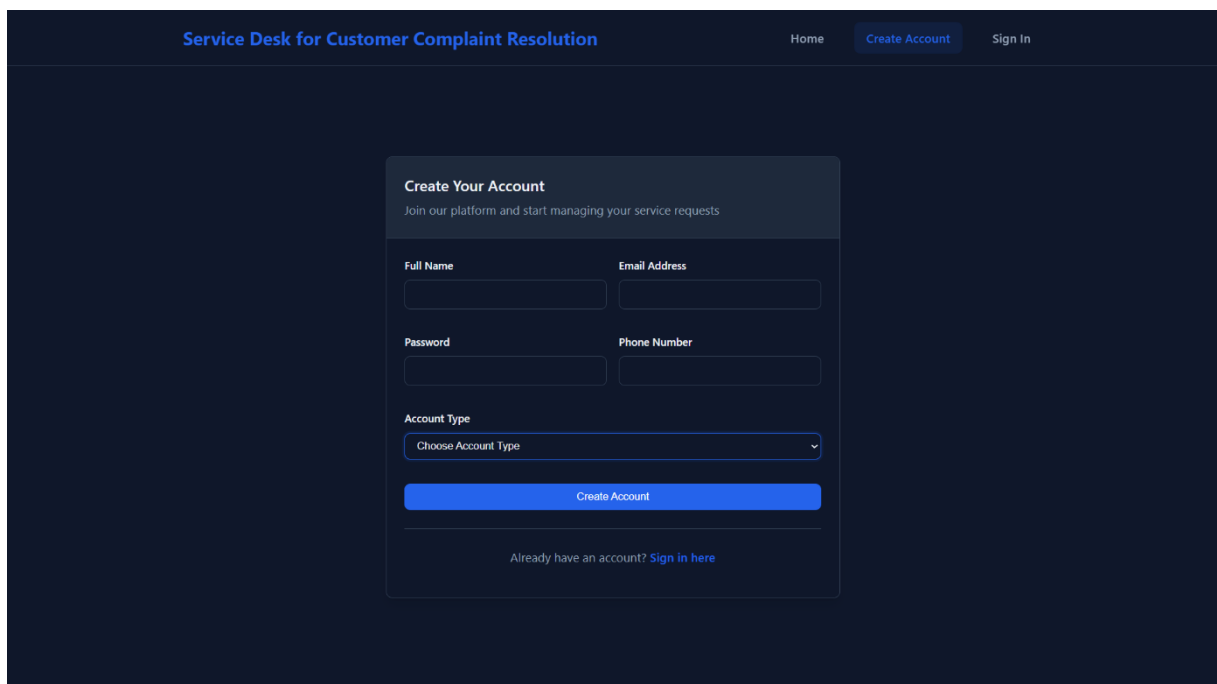
- Jest for backend
- React Testing Library for frontend

10. SCREENSHOTS OR DEMO

- Landing Page



- Signup Page



- Login Page

The screenshot shows a login page with a dark blue background. At the top, there is a navigation bar with the text "Service Desk for Customer Complaint Resolution" on the left and "Home", "Create Account", and "Sign In" on the right. The "Sign In" button is highlighted in a lighter blue. In the center, there is a white login form. The form has a header section with the text "Welcome Back" and "Please sign in to access your account". Below this, there are two input fields: "Email Address" and "Password". A "Sign In" button is located below the password field. At the bottom of the form, there is a link that says "Don't have an account? [Create one here](#)".

- User Complaint Dashboard

The screenshot shows a user complaint dashboard for a user named "hemanth". At the top, there is a navigation bar with the text "Welcome, hemanth" on the left and a "Sign Out" button on the right. Below the navigation bar, there are two buttons: "Submit New Issue" and "Track My Issues". The "Track My Issues" button is highlighted with a blue border. Below these buttons, there is a section titled "Your Issue Status Dashboard" with the subtitle "Monitor the progress of all your submitted service requests". In the center, there is a card for a specific issue. The card has a header with the text "Issue #CMP000003" and a status label "Pending" in orange. Below the header, there are two sections: "Contact Information" and "Issue Details". The "Contact Information" section contains the following details: "Name: test", "Location: bvm, ap", and "Postal Code: 121212". The "Issue Details" section contains the following details: "website problem" and "Service Address: bvm". At the bottom of the card, there is a button labeled "Open Communication".

Welcome, hemanth

Sign Out

Your Issue Status Dashboard

Monitor the progress of all your submitted service requests

Issue #CMP000003

Pending

Contact Information

Name: test

Location: bvm, ap

Postal Code: 121212

Issue Details

website problem

Service Address: bvm

Close Communication

Communication Thread

Issue ID: 685c2d513577f2eb9e9f33

adesh Jun 26, 06:24 PM

hi

check my problem

Send

- Agent Complaint View

Agent Workspace - adesh

Sign Out

Dashboard

My Complaints

0

ASSIGNED

1

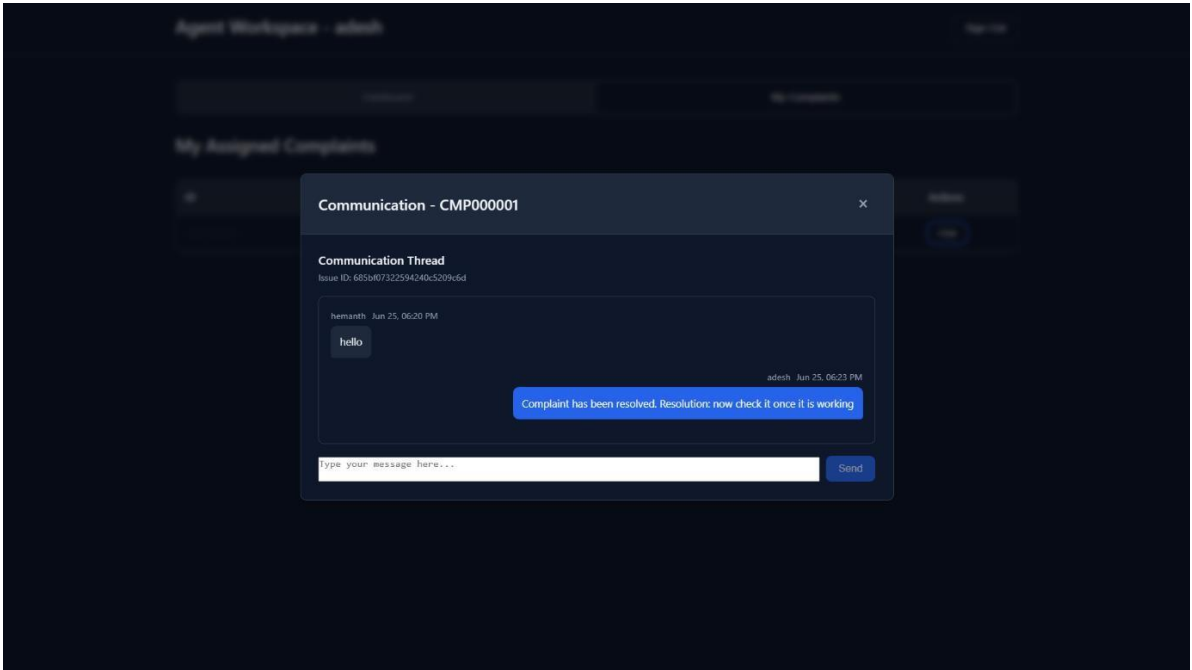
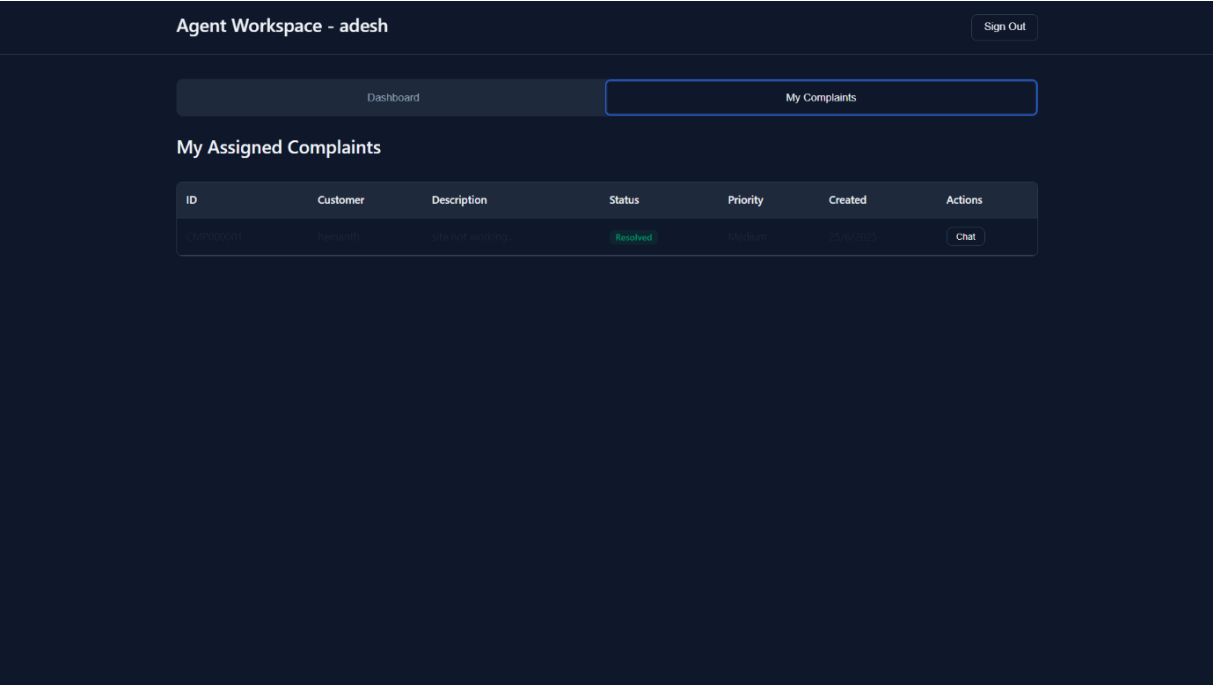
RESOLVED

1

TOTAL

0

PENDING MESSAGES



- Admin Dashboard

Admin Dashboard - eswar adesh

Dashboard

Complaints

Users

Agents

Sign Out

Complaint Management

ID	Status	Priority	Assigned Agent	Actions
CMP000003	Pending	Medium	Unassigned	Assign Agent
CMP000002	Assigned	Medium	user1	
CMP000001	Resolved	Medium	adesh	

Admin Dashboard - eswar adesh

Dashboard

Complaints

Users

Agents

Sign Out

User Management

Name	Email	User Type	Status	Created
test1	test1@gmail.com	Ordinary	Active	25/6/2025
test	test@gmail.com	Ordinary	Active	25/6/2025
user1	b@gmail.com	Agent	Active	25/6/2025
user	a@gmail.com	Ordinary	Active	25/6/2025
eswar adesh	eswaradesh100@gmail.com	Admin	Active	25/6/2025
hemanth	hema@gmail.com	Ordinary	Active	25/6/2025
adesh	adesh@gmail.com	Agent	Active	25/6/2025
eswar	eswar@gmail.com	Admin	Active	25/6/2025

Admin Dashboard - eswar adesh					
<div> Dashboard Complaints Users Agents Sign Out </div>					
Agent Management					
Name	Email	Active Complaints	Total Assigned	Resolved	Status
user1	b@gmail.com	1	1	0	Active
adesh	adesh@gmail.com	0	1	1	Active

11. GITHUB & PROJECT DEMO LINK

- Source Code GitHub Link : https://github.com/EswarAdeshCh/Service_Desk
- Demo Video Link: <https://youtu.be/xfFbtcBX9Cg?si=P-yqe0JoEMIMbId3>

12. Known Issues

- No offline support
- Initial deployment requires stack familiarity
- Mobile responsiveness needs further refinement

13. Future Enhancements

- Mobile app using React Native or Flutter
- AI chatbot integration for complaint intake
- SMS and email notifications
- Multi-language support
- Advanced analytics and visual reports
- Integration with CRM systems