

Scope of Improvement

This section outlines the current system limitations and potential future enhancements to improve scalability, usability, and enterprise readiness.

① Member Assignment

| Current System | Future Improvement |
|--|---|
| A member can be assigned to only one project at a time | Members can be assigned to multiple projects simultaneously |
| Status changes to “assigned” globally | Project-wise assignment tracking |
| Limited resource utilization | Better workload distribution |

Enhancement Plan

- Introduce `projectMember` mapping collection
 - Track role & workload per project
 - Enable cross-project collaboration
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② Authentication System

| Current System | Future Improvement |
|-----------------------------|-----------------------------------|
| Manual email/password login | Social authentication integration |
| No SSO support | Google / Microsoft / GitHub login |
| Higher login friction | One-click secure access |

Enhancement Plan

- Integrate OAuth 2.0
 - Use Google Identity / Firebase Auth
 - Add multi-factor authentication (MFA)
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3 Invitation System

| Current System | Future Improvement |
|--------------------------|------------------------------|
| Basic project invitation | Email-based invite links |
| In-app acceptance only | One-click join via email |
| Limited expiry handling | Auto reminders before expiry |

4 Role & Permission Management

| Current System | Future Improvement |
|----------------------|-----------------------------|
| Basic role handling | Granular RBAC system |
| Fixed roles | Custom project roles |
| No permission matrix | Module-level access control |

5 Task Management

| Current System | Future Improvement |
|-----------------------|--------------------------|
| Basic Kanban tracking | Gantt charts & timelines |
| No task dependencies | Linked / blocked tasks |
| Manual updates | Automation rules |

6 Notifications

| Current System | Future Improvement |
|------------------------|----------------------------|
| Limited in-app updates | Real-time notifications |
| No reminders | Email & push alerts |
| No escalation | Deadline escalation system |

7 Reporting & Analytics

| Current System | Future Improvement |
|------------------------|---------------------------|
| No analytics dashboard | Productivity insights |
| Manual tracking | Automated reports |
| No performance metrics | Member workload analytics |

8 File & Document Management

| Current System | Future Improvement |
|-----------------------|-------------------------------|
| No file attachments | Task file uploads |
| No document sharing | Versioned documents |
| Limited collaboration | Integrated document workspace |

9 Caching & Performance

| Current System | Future Improvement |
|----------------------|------------------------|
| Basic query handling | Redis caching layer |
| No response caching | API cache optimization |
| Higher DB load | Distributed caching |

10 Background Automation

| Current System | Future Improvement |
|--------------------|----------------------------|
| Basic cron jobs | Distributed job queues |
| Limited automation | Workflow automation engine |
| Manual monitoring | AI-based predictions |

UI/UX Enhancements

| Current System | Future Improvement |
|-----------------------|-------------------------|
| Desktop-focused UI | Fully responsive design |
| Limited accessibility | Mobile app support |
| Basic dashboards | Customizable widgets |

Scalability Vision

Future enterprise-ready upgrades:

- Microservices architecture
 - Kubernetes deployment
 - Multi-tenant workspaces
 - API rate limiting
 - Audit logs & compliance
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Business Impact of Improvements

- Better team collaboration
- Increased productivity tracking
- Enterprise adoption readiness
- Secure authentication ecosystem
- Scalable infrastructure support