## **📌 Unified Task Collaboration System Specification**

**📁 Core Task System**

* ✅ **Task Creation**: via full form or quick-add modal
* ✍️ **Subtasks Support**: each with separate status and assignee
* 🧷 **File & Link Attachments**: support file uploads or external URLs
* 🏷️ **Tags/Labels**: customizable with colors
* 🔄 **Recurring Tasks**: e.g., "Every Monday" or monthly
* ☑️ **Completion Options**:
  + Checkbox mark as complete
  + Drag into "Completed" zone with confetti effect (optional)
* 🧠 **Smart Suggestions**:
  + Suggest missing phases (e.g., testing)
  + Recommend assignees based on workload/history

**💼 Assignment & Teaming**

* 🔍 Smart assignee suggestions based on past data
* 👥 Optional multi-assignee toggle
* 🧠 View assignee workload/conflicts (e.g., task count)
* 👤 Invite guest collaborators with limited permissions

**🧰 Template System**

* 📂 Task/project templates with:
  + Predefined sections, subtasks, roles, deadlines
  + Default assignees
* 📦 Template sharing and cloning
  + Team template library
  + Public gallery (Notion-style)

**🛡️ Environment & Config**

* 🧾 Project .env area:
  + Private/public visibility toggle
  + Secrets and keys storage
  + Permissions for who can view (e.g., PM-only)

**🧭 Views and Visualization**

* 📊 **Storyboard View**:
  + Group by Milestones, Epics, Teams
  + Zoom/collapse columns, color-coded
  + Drag & drop enabled
* 📅 **Calendar View**:
  + Task timeline grid
  + View by day/week/month
  + Drag between days
* 📌 **Sprint Planning**:
  + Backlog + drag into Sprint 1, 2, etc.
  + Track story points & velocity
* 📈 **Gantt/Timeline View**:
  + Task dependencies, durations
  + Drag to adjust
  + Arrows to indicate dependencies
* 📖 **Document/Story Mode**:
  + Auto-generate readable doc from project
  + PDF export or public view link

**🔁 Real-Time Collaboration**

* 🔄 WebSocket sync for:
  + Live task movement
  + Typing and editing indicators
* 🧑‍🤝‍🧑 Live presence:
  + Avatars when someone views or edits
  + "Jonathan is typing..." indicators
  + Google Docs-style shared cursor view

**🧾 Filtering and Search**

* 🔍 Search across tasks, comments, and projects
* 📂 Filters:
  + By status, assignee, tag, priority, due date
  + Save custom views (e.g., "Urgent Design Tasks")

**📊 Analytics + Dashboard**

* ⏱️ Estimated vs Actual time tracking
* 🧪 Completion charts and sprint stats
* 🔝 Leaderboards: most active, most helpful

**🧩 Gamification (Optional Toggle)**

* 🎯 Points system (task done, help others, review)
* 🎖️ Badges and leaderboard

**🔔 Notifications System**

* In-app unread count
* Optional email or toast notifications
* Events: task assigned, deadline reached, comment added

**🧠 Focus Mode**

* 🍅 Pomodoro timers
* 🎧 White noise/music integration
* 👁️ Show only assigned tasks

**🧑‍💼 Role System**

| **Role** | **Permissions** |
| --- | --- |
| Admin | Manage all users/projects/settings |
| Project Manager | Manage assigned projects, invite members, assign tasks |
| Member | View/complete assigned tasks, comment |
| Guest | View/comment only (limited) |

Custom permission matrix per project with toggle UI (e.g., allow members to change due date but not delete tasks)

**🛠️ Logs & Audit Trails**

* Activity feed per project or per user
* Who moved what, when
* Timeline mode like GitHub Pulse

🌓 Light/dark or (auto) theme toggle with system time detection

**🔄 Flowchart: Collaborative Task Lifecycle**

flowchart TD

A[User Creates Project] --> B[Set Roles and Team Access]

B --> C[Configure Environment / Visibility / Secrets]

C --> D[Create Task or Load Template]

D --> E[Add Subtasks, Assignees, Tags, Files]

E --> F{Real-Time Collaboration}

F --> G[Others Join / Edit / Comment]

G --> H[Task Appears in Views (Kanban, Calendar, Gantt, etc)]

H --> I[Task Updated: Drag, Comment, Mark Complete]

I --> J[Trigger Automations (e.g. feedback task)]

J --> K[Gamify / Notify / Log Activity]

K --> L[Data Appears in Analytics & Dashboard]