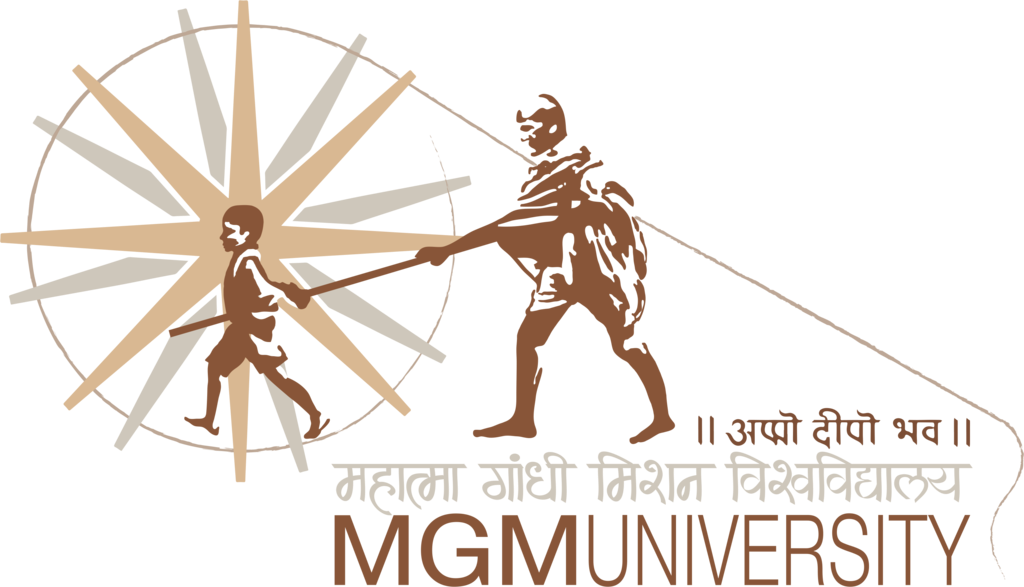
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Task & Performance Management System

PROJECT SYNOPSIS

Master of Computer Applications

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# 1. Title and Introduction

Project Title: TP Board (Task and Performance Management Board)

**Introduction:** TP Board is a web-based Kanban board application that facilitates task and performance management for teams and individuals. It is built using React.js (with custom hooks), Firebase (Firestore, Cloud Functions, Emulators, Hosting, Security Rules), and Zustand for state management. The project delivers a simple, efficient, and real-time collaborative tool that enables users to manage workflows with drag-and-drop functionality and real-time data synchronization.

**Statement of the Problem:** Most project management tools like Trello are overloaded with features, making them difficult to navigate for students and non-technical users. There's a lack of accessible tools that provide essential functionality without overcomplicating the user experience.

**Justification/Rationale:** TP Board addresses this gap by offering a minimal, user-friendly Kanban board built with modern web technologies. With Firebase’s powerful backend infrastructure and Zustand’s lightweight state management, TP Board ensures seamless real-time collaboration, scalability, and a pleasant user experience.

# 2. Objectives and Scope

**Objectives:**- To develop a cloud-powered Kanban board application using React.js.  
- To integrate Firebase Authentication and Firestore for multi-user functionality and real-time updates.- To implement drag-and-drop interaction using `react-beautiful-dnd`.  
- To use Zustand for simplified state management.  
- To deploy the application using Firebase Hosting with scalable cloud infrastructure.

**Scope:**  
- Frontend using React.js with modular components and custom hooks.  
- Backend services handled via Firebase (Auth, Firestore, Functions).  
- Multi-user login, task creation, update, and sharing.  
- Board-based task organization (To Do, In Progress, Done).  
- Deployment via Firebase Hosting for global access.

# 3. Flow of the Project (Step-by-Step in One Line)

1. User visits the TP Board app via Firebase Hosting.

2. User signs in using Firebase Authentication (Google or email).

3. User dashboard loads with personal or shared Kanban boards.

4. User creates tasks that are stored in Firestore under the selected board.

5. Tasks are displayed in columns (To Do, In Progress, Done) using React components.

6. User drags and drops tasks across columns using react-beautiful-dnd.

7. Zustand manages app state for smooth UI interactions and task data.

8. Firestore updates tasks in real-time for all collaborators on the board.

9. Optional backend logic runs via Firebase Cloud Functions (like notifications or cleanup).

10. The app is deployed and accessed globally through Firebase Hosting.

# Applications of TP Board

1. Student Project Tracking: Manage assignments and group work effectively.

2. Team Collaboration: Coordinate team tasks with shared real-time boards.

3. Performance Management: Track task status and team contributions.

4. Agile Development: Support sprints, backlogs, and progress tracking.

5. Personal Productivity: Organize personal goals or daily task lists.

6. Small Business Workflow: Manage small-scale operations and task delegations.

# 4. Expected Outcomes and Contribution

**Expected Outcomes:**  
- A fully functional, responsive, and real-time Kanban board with Firebase backend.  
- Support for multiple users to log in, collaborate, and manage tasks on shared boards.  
- Drag-and-drop functionality with instant Firestore sync.

**Contribution:**- Provides a clean and accessible productivity tool for students and small teams.  
- Demonstrates the practical integration of modern full-stack web technologies.  
- Encourages cloud-based collaboration and agile task tracking in academic environments.

# 5. Hardware and Software (if applicable)

**Hardware:**  
- Laptop or desktop with internet access.

**Software/Technologies:**- React.js (with custom hooks)  
- Firebase (Authentication, Firestore, Functions, Hosting)  
- Zustand (State management)  
- react-beautiful-dnd (Drag and drop)  
- Node.js, npm  
- Visual Studio Code

# 6. Conclusion

TP Board is a powerful yet simple task and performance management board designed to address the productivity needs of modern users, especially non-technical audiences. By leveraging the latest technologies such as React.js, Firebase, and Zustand, this project delivers a real-time, responsive, and collaborative solution. Its clean design and seamless user experience make it ideal for educational institutions and teams aiming to adopt agile methods without complexity.

# 7. References

1. React.js Documentation – https://reactjs.org/docs  
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3. Zustand State Management – https://docs.pmnd.rs/zustand  
4. react-beautiful-dnd – https://github.com/atlassian/react-beautiful-dnd  
5. YouTube Tutorial: Build and Deploy Kanban Web App – https://youtu.be/5H0I97Pe9YY  
6. Trello (as comparative tool) – https://trello.com