

Mobile Application for Enhanced Task Management system

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Abstract— Most people such as working professionals, students, and house makers often find lack of your time and time management as problems for successful task accomplishment. One among the key reasons for failure in task accomplishment is inefficient planning of the tasks. It's vital to look for a tool that can assist in schedule and manage the time, meetings, and appointments. Why this project is important work stems from the necessity of leveraging a single React Native Application that may be accustomed control many of the activities such as tasks, appointments and meetings for people and also for teams and tiny companies. This application uses Flow Time methodology in handling activities. This program will reduce the purchasing costs incurred through different uses.

Keywords: Task, react native, meeting, scheduling, Firebase.

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I. INTRODUCTION

In our everyday life, the amount of time is very much worth especially to an employee, where we can't afford waste of time to spend on accomplishing nothing, the answer comes with the help of task management tool. Task management is the means of creating and controlling tasks along the project lifecycle. It involves collecting requirements, planning, tracking status, testing and developing final reports once the work is done. People use task management tools like pen and paper. or computer programs to organize and accomplish personal goals

for the day-to-day work. Activities can have a status, start date,

deadline, the people who have been tasked with working on them, comments, labels[1], and documents that are associated with them. Additionally advanced task management systems handle dependencies, recurrence, priority, and complexity. React Native combines the strengths of native growth with React, a leading JavaScript library for creating user interfaces. React components encapsulate existing native code and interact with native APIs using React. declarative model for UI and JavaScript.

It makes native app development for whole new sets of developers, and can let existing native teams work much faster. The use of cloud computing features, such as Firebase which is a Google product intended to help developers build, manage, and grow the apps easily. It is the great solution for developer to build the application faster and in a more secure way. It offers services to Android, IOS, Web and unity.[2] Flow time technique is a technique of

time management which was designed by Zoe Read-Bivens. Flow time technique is useful when dealing with creative, developers, students, and all other individuals whose occupation involves focused attention.[5],[6]

It involves choosing a particular task and performing it until one is tired, then stop. This is done again and again until one complete the assignment This article addresses the characteristics of native apps. TaskAtFlow along with the scheduling algorithm.

Understanding firebase and react native makes one realize how in order to build a solution that is cost-effective and scalable. The complexity of the solution comes from its scheduling algorithm, which breaks down the user task into a series of subordinate tasks. It does this by leveraging machine learning and automatically scheduling and rescheduling of a date for the user. The user preferred time slots is utilized to schedule, task derived from the pending tasks, and user's progress.[9]

II. EXISTING SYSTEM

In Existing system the task management tool which is a web application employs Pomodoro technique [1]. Pomodoro technique is a time management method devised by Francesco Cirillo.

The Pomodoro technique method breaks up work into small, manageable pieces that can be carried out in short intervals of time interrupted by short pauses. The technique requires persistent focus on your work for 25 minutes, break for five minutes; again with 4 times and a break of 20 minutes longer Then the process continues until all the tasks

assigned are completed. for the day. The method employs a timer that informs user when to begin and end the activity and when to break. Task management software is an online application that is a computer program residing on a far-off server and sent over accessed through a browser-enabled interface on the Internet.

III. PROPOSED SYSTEM

The Pomodoro Technique may prove useful for tasks that are unwelcome or activities that don't require a lot of thinking. The problem is whenever you must do something which is creative innovation, and problem-solving. The period of 25 minutes is usually too brief and interrupts your workflow and chain of logic.

In addition, 25-minute intervals are also too lengthy for some operations. The Flow time technique remedies these issues, since you can choose your own timelines make sure that they fit your workflow.

The flow time technique is a derivative of the Pomodoro technique., wherein rather than having timer for every individual task, the individual alone can opt for taking task time and break time. It puts the user in the state of flow (It defines a period of time in which one is fully submerged and engaged in an activity). The method has not much rules, the most significant of which is to listen to your inner voice.

How simple it is is one of its greatest strengths.TaskAtFlow is an online task management system on FlowTime method, which allows people to improve their The app is built with React Native, which is a JavaScript framework.A framework employed for the development of native applications. most critical feature of TaskAtFlowis task scheduling. A user simply needs to input their activities, an optional priority In addition, a daily schedule is created for such people. The Integrationwith personal calendars is a fundamental feature of TaskAtFlow.

IV. SYSTEM COMPONENTS

2.1 Mobile Application (Android)

- 1 **Programming Language:** Java
- 2 **Database:** Google Firebase
- 3 **Cloud Storage:** Google Cloud Storage (for images)

2.2 User Functionalities

Enrollment and Authentication

Task Management:

- 1 Create Task (id, title, date, time, description, image)

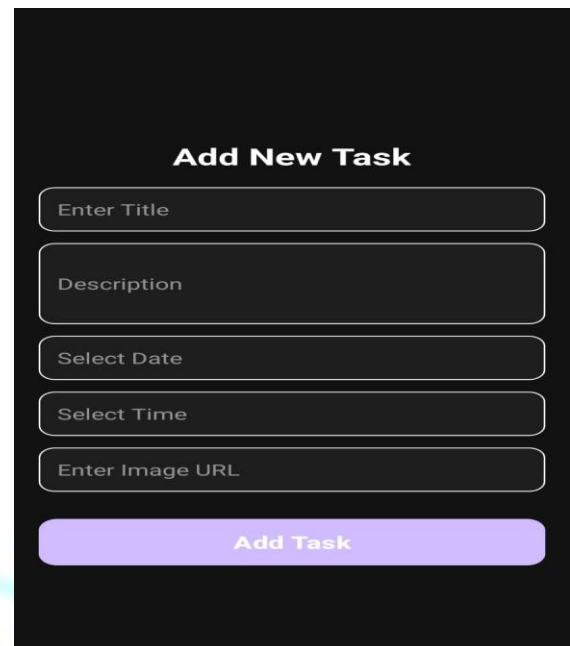


Figure 1: Adding New Task

2 Review Assignments

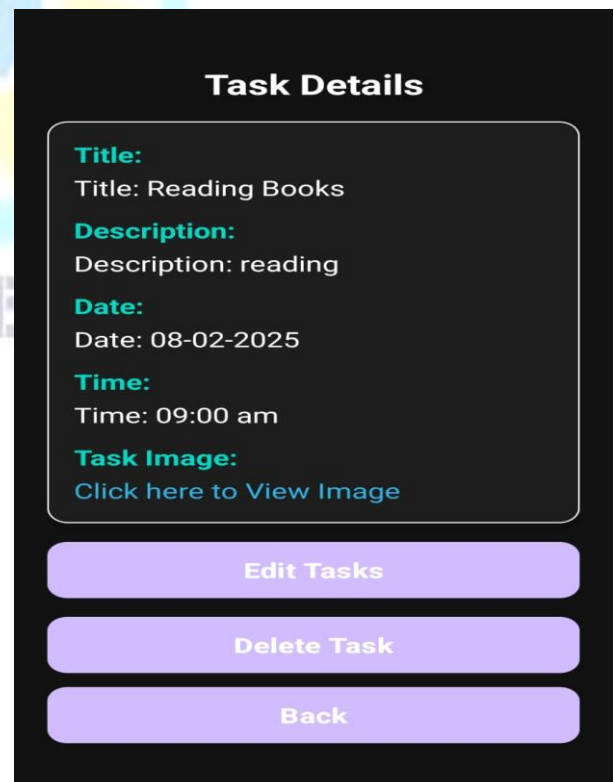
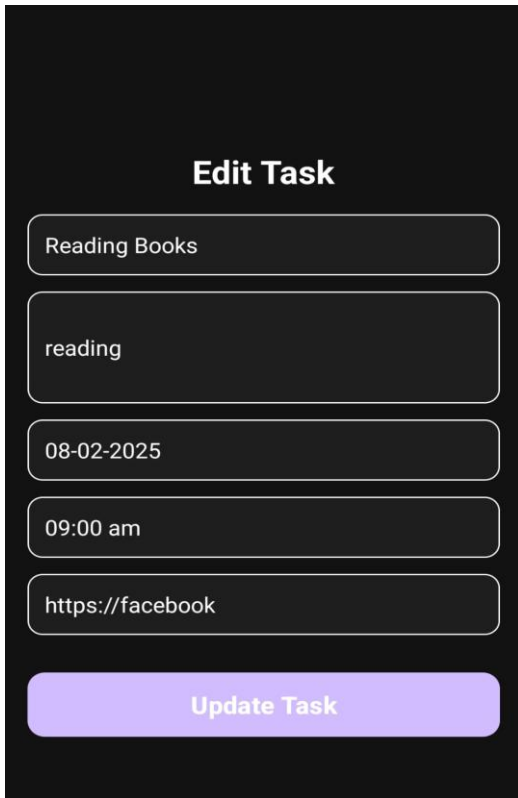


Figure 2: Task Details

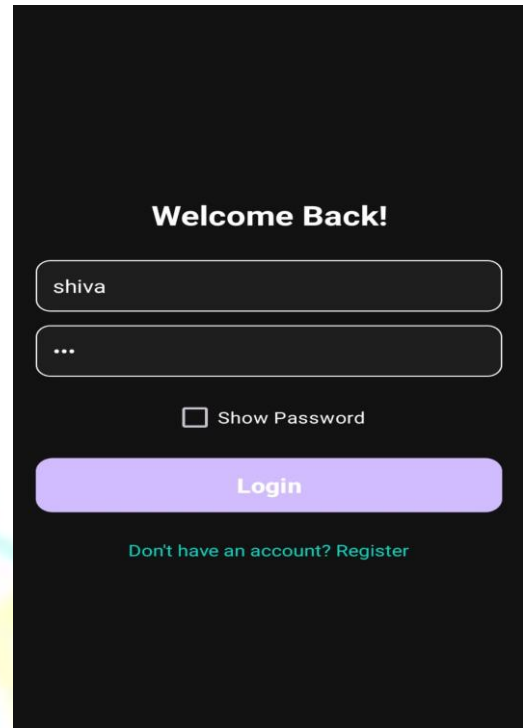
3 Revised Task



The 'Edit Task' screen features a dark blue background with white text. At the top, the title 'Edit Task' is centered. Below it, there are five input fields: 'Reading Books', 'reading', '08-02-2025', '09:00 am', and 'https://facebook'. At the bottom, there is a red 'Update Task' button.

Figure 3: Task Editing

5 Logout



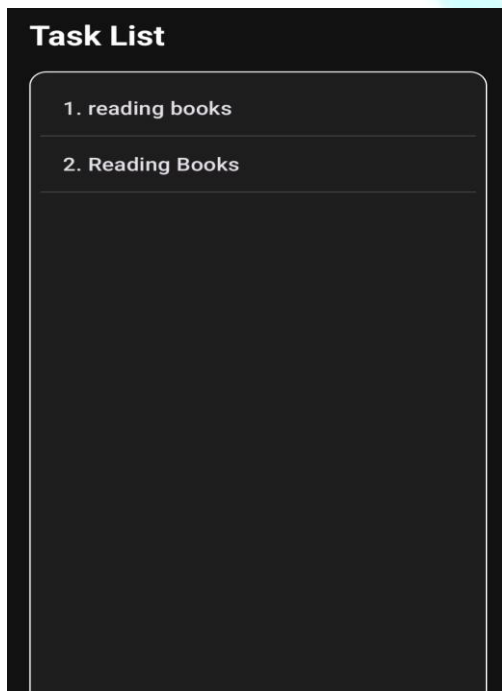
The 'Welcome Back!' screen has a dark blue background with white text. It includes a title 'Welcome Back!', a text input field containing 'shiva', a password input field with a red eye icon, a 'Show Password' checkbox, a red 'Login' button, and a link 'Don't have an account? Register'.

Figure 5: Registration

2.3 Spring Boot - Cron Services

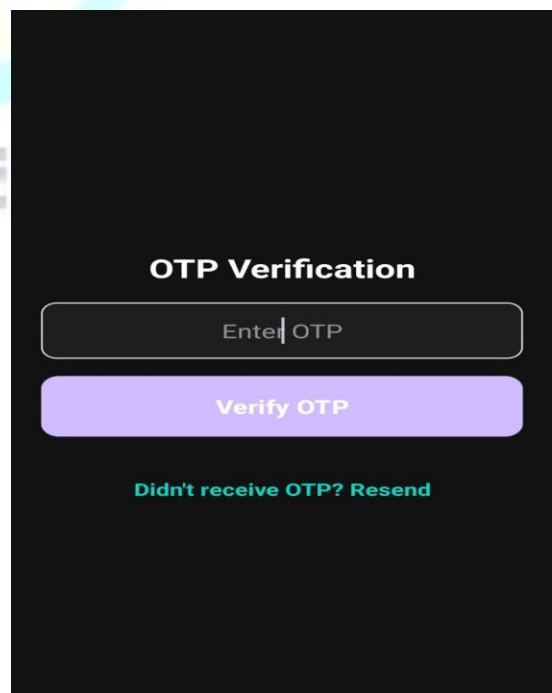
Automated Email Notifications

4 Remove Task



The 'Task List' screen has a dark blue background with white text. It features a title 'Task List' and a list of tasks: '1. reading books' and '2. Reading Books'. Below the list, there is a large red button.

Figure 4: Removing Task



The 'OTP Verification' screen has a dark blue background with white text. It includes a title 'OTP Verification', a text input field with 'Enter OTP', a red 'Verify OTP' button, and a link 'Didn't receive OTP? Resend'.

Figure 6: Otp Verification

3. System Model

The system model has four main components:

1 Cloud Service Provider (CSP): Offers data storage capacity and processing capacity but is not trusted.

2 Data User: Keeps data in the cloud and relies on CSP for upkeep.

3 Third Party Auditor (TPA): Assures data integrity with a partially trusting mindset.

4 Private Key Generator (PKG): Trusted entity creating master and private keys on behalf of users.

4. Security Threats and Countermeasures

Under the security model, the CSP can invoke:

Forge Attack: CSP tries to forge a legitimate verification proof for deleted/corrupted data blocks.

Replace Attack: CSP substitutes a corrupted data block with a valid one to be able to pass verification.

Furthermore, the TPA is also presumed to be inquisitive and can try to get audited information during verification.

5. Design Objectives

Correctness: Promotes accuracy of private key creation, blinded file signatures, and audit procedures.

Sensitive Information Hiding: Protects personal information from revelation to unauthorized parties.

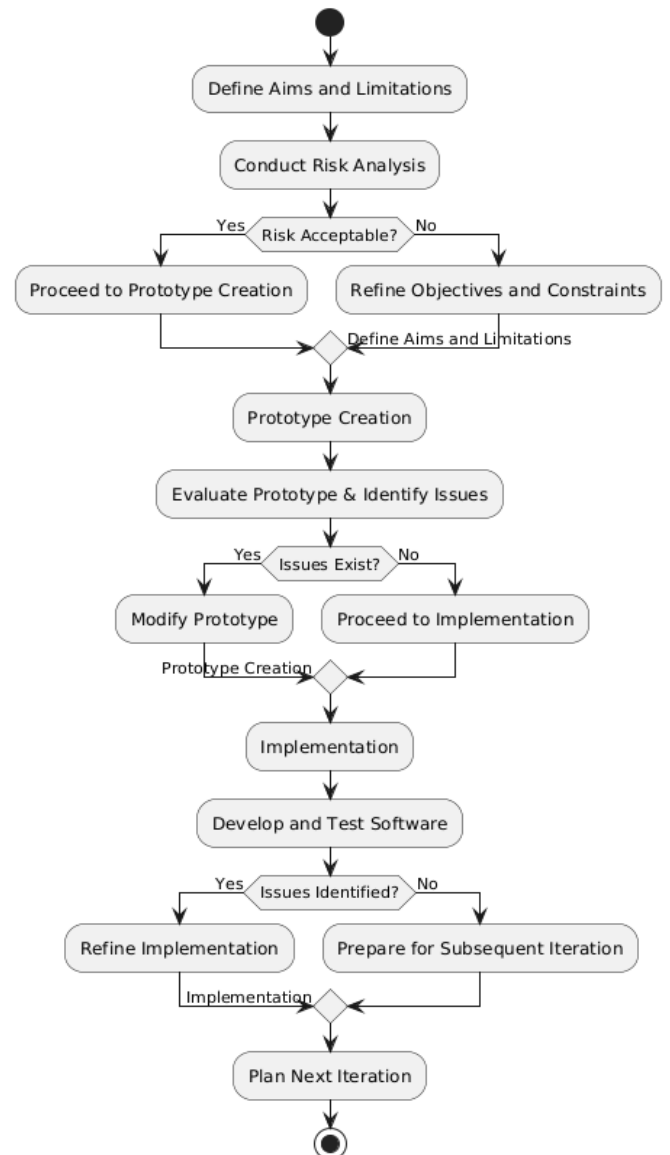
Auditing Soundness: Does not let CSP pass verification without storing unaltered data.

6. The Software Development Life Cycle (SDLC)

6.1 SDLC Model: Spiral Model

Blends iterative and waterfall SDLC models with an emphasis on risk analysis.

Stages: Aims and Limitations → Prototype Creation → Implementation → Preparation for Subsequent Iteration.



6.2 SDLC Activities

Communication: Requirement discussion with stakeholders.

Requirement Gathering: Collecting information from developers, users, and databases.

Feasibility Study: Economic, operational, and technological feasibility analysis.

System Analysis: Determines the software constraints and chooses an effective development model.

7. Feasibility Study

Technical Feasibility: Assesses hardware/software capability and technical expertise.

Operational Feasibility: Evaluates ease of operation and maintenance.

Economic Feasibility: Cost-benefit analysis for deployment and development.

Legal Feasibility: Analyzes adherence to legal and ethical requirements.

Schedule Feasibility: Guarantees the project is finished on schedule.

8. Requirements Analysis

Delegated Verifiability: Allows TPA to check without exposing itself to full data.

Storage Correctness: Ensures CSP retains original user information.

Privacy-Preserving Auditing: Prevents TPA from obtaining audited data.

Batch Verification: Allows several audits to be performed in one operation.

V. DESIGN AND IMPLEMENTATION

TaskAtFlow is a mobile app that employs framework react native, React native is a highly favored The widely used JavaScript framework for development both the iOS and Android apps while requiring development on one platform platform. It is employed for the creation of apps for Android,

Android TV, iOS, macOS, tvOS, web platforms, and Windows. UWP allows developers to leverage the React framework. along with native platform capabilities. The backend of the application is fueled by Firebase, a product of Google which assists developers to develop, manage and grow their apps easily. The firebase provides feature like authentication, database management, machine learning algorithms, file storage backed by Google Cloud Storage, and web hosting. This allows The app is best developed using Firebase. It enables fast application development by developers, leading to a more a safe way. No Firebase side coding is required. This renders its features usable in a more efficient manner. It offers services on Android, iOS, web platforms, and Unity. The Firebase Real-time Database is a cloud-hosted database. The JSON data is stored and duplicated in real time to all the connected clients. After you establish cross-platform applications to our Apple platforms, Android, and JavaScript SDKs, all your clients will share a single Real-time Database instance and automatically get updated with the newest available data. JSON syntax is nearly identical to that of The JavaScript object development process. As a result, a JavaScript code can easily transform

JSON data into JavaScript objects. Since the format is text-based only, JSON data can be distributed simply across computers and employed by anybody

programming language.

Firebase Authentication offers backend services, easy-to-use SDKs, and pre-built UI libraries to authenticate users to your application. It has support for password-based authentication ,phone numbers, popular identity providers such as Google, Facebook and Twitter, and others. Firebase Authentication is deeply tied into other Firebase services, Additionally, it employs tested business standards like OAuth 2.0 and OpenID Connect, so that you can easily add it to your

custom backend. The download and upload of the documents use firebase cloud storage to save, fetch, and remove the document stored in the storage system. Firebase Cloud Storage is a high-performance, lightweight, and affordable object storage service built to Google scale. The Firebase SDKs for Cloud Storage add Google security to file downloads and uploads for your Firebase apps even when there is no network. We can do this SDKs for image storage, audio, video, or other user-generated On the server side, you can use Google Cloud Storage. APIs for accessing the same files. The meeting feature of the application is used with the integration of zoom SDK to our mobile app. Zoom Meeting SDKs allow new apps and current apps to include a wide range of features provided under the Zoom Client program. The application provides chat feature where the user can pose questions amongst the manager and co-workers. The feature is established with the help react native gifted chat This is the React Native bundle containing all the components. are ready to use in our project. Since firebase provide cloud based message in SDK it is easy to implement. The main aim is to provide the system with scheduling and rescheduling activities. Scheduling is performed When an individual introduces a new project or task, and simultaneously Task At Flow completion. In addition, the tasks are rescheduled at any time a user modifies the integrated The operation of rescheduling and scheduling tasks is only. when a user initiates some triggers.

A. Scheduling Methodology

The scheduling algorithm is a central part of Task At Flow. The algorithm for scheduling takes care of two

Exercise: create a revised timetable and reschedule activities.

Scheduling is conducted in the next steps:

1. Discover free time slots in user's calendar
2. Determine how many tasks can be accommodated in the time slot for the user
3. Generate entries within the database for every individual task.

4. Optional use of machine learning to find out how much of the task can schedule in the user time slot.

In stage 1 of the scheduling process, the software creates an object holding free time slots, with start and end timestamps. Step 2 is responsible for generating an object that consists of the amount of task that can be scheduled in all of the free time periods as well as brief (5 minute)

long (20 minute) breaks. The last step asks all the projects and activities the user is engaged in, and completes them into the provided intervals as defined by the user specifications priority.

Rescheduling is when people choose to miss a task, request extra time for a task, or insert a new task or a calendar event. Rescheduling is the application of a variation of the In addition to the above actions, it also monitors the task count. it took for at ask to complete. If the task is excluded, all the below tasks are moved up by one task and the current task is moved to the

subsequent position in the queue should an additional task be requested for the present task, all tasks are moved down by one task and news lot is developed immediately following the ongoing task at hand. As soon as a new job is added into the list, a blank space is allocated for its positioning, and task is added to the schedule.

Each time a user alters the calendar by filling in meetings, events, or time off, those spots are listed in the database with a specific label, thereby making TaskAtFlow skip those slots during the scheduling process. The most difficult part of scheduling is the development of the reschedule code because it deals with rearranging tasks around Current objects.

The challenge lies in monitoring the brief and prolonged pauses, and the need to alternate tasks to next/previous day. The start and finish dates, accessible in task This product is used to address this problem, since the fields are used for shifting tasks up/down the schedule without need to recompute the start/end times. Nevertheless, one must keep the user's work day schedule and number of tasks in consideration when refreshing task objects. When rescheduling occurs the tasks must be accurately shifted to The subsequent day will be utilized if the present day lacks available time slots.

do that, rescheduling code is checking that task's start/end periods coincide with the user's workday schedule. Also, in order to ensure breaks are evenly distributed, while rescheduling must keep count of tasks updated. This ensures that every task receives a short break and a long break after each four Activities.

B. Comparision of Existing System with Proposed System

The sole variation is that the system currently being used utilizes web Application and the current system is mobile Application. The mechanism employed utilizes Pomodorot echnique to set task to user timeline, which is not desirable.

A task that requires sustained periods of uninterrupted attention or task that are too short work period finds Pomodoro technique applicable for them.

The timer is consistent interruption that inhibits the capacity to go into flow state (flow state refers to a duration moment when there is a direct and full-bodied involvement with task).

The suggested system FlowTime method is an extension of

The Pomodoro technique is by employing a timer for in every individual assignment, the student can choose to take interval time and task time. It promotes being in flow

The main advantage of the FlowTime method is

- It reduces disruption of business operations.
- It elicits task flow state
- Taking breaks is characterized by greater flexibility
- It is more personalized for users

VI. RESULTS AND DISCUSSION

The final Android Application developed is intended to reduce the usage of several other application and task management tools. It rectifies the various drawback of using several different applications for each task such as high usage of storage, data, high CPU usage, and etc...

Therefore the objective of the application has been achieved and the result screenshot has been given above.

VII. CONCLUSION

In this work the mobile task management application that helps individuals and businesses to effectively organize their projects and tasks. Using this project as calendar for appointments. Manage projects using dashboards between team members. This project will reduces the usage of usingother tool, this makes the application as an all in one application proving the features mentioned. The TaskAtFlow is developed on react native, with interactive UI based system. As this application is developed in react native, the application can run on both android and IOS.

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