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Life Changing Time Management Approach to Release and Analyze Work Stress for Computer Screen Users

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Abstract:

The present article aims to propose a life changing time management (LCTM) extension for Chrome with three modules designed to improve productivity and time management. The first module is a Screen Time Management feature that allows users to manage their work time and break time effectively. When the work time ends, a popup is generated to remind the user to take a break. The user can skip the break time up to three times, after which they must take a break. The second module is a To-Do List that enables users to add tasks with voice recognition and set a specific time for each task. A popup is generated five minutes before the scheduled time to remind the user of the task. The third module is a Meeting Scheduler that allows users to enter meeting links and set a time for the meeting. A popup is generated five minutes before the scheduled time with options to join the meeting or cancel it. If the user selects the join meeting option, they are redirected to the meeting tab using the link provided. The analysis of the t-test indicated that this Chrome extension aims to help users manage their time and increase productivity by providing useful features that promote a healthier work-life balance.

Keywords - *Life Changing, Chrome, Extension, Web browser, Internet Users.*

1. INTRODUCTION

With the rise of remote work due to Covid-19 Pandemic, people are spending more time in front of screens, leading to health issues like headaches and eye problems. Due to busy schedules and the pressure to be productive, many individuals struggle to prioritize self-care and take breaks. Managing daily tasks and meetings on daily basis has become challenging and requires a more efficient system [1]. Digital technology and gadgets are prominently used to set standards, assess performances, and analyse behaviours [2].

Spending an increased amount of time in front of screens is leading to health issues, and a solution is needed to address this problem. LCTM Chrome extension's Screen Time Management module is designed to help users manage their screen time by dividing it into work time and break time. After completing the work time, a pop-up notification is generated to start the break time, reducing eye strain and headaches associated with prolonged screen time. Users can skip the break time notification only three times, after which they are required to take a break to avoid any potential health problems. It's an excellent tool for users who want to manage their screen time efficiently and prioritize their health while working. Daily task management is a common challenge faced by screen users, and a possible solution to address this issue is needed.

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Related Work

To carry out everyday chores including educational activities, social connections, fulfilling official duties, shopping, leisure, and information updating, people nowadays must remain in the digital world [3]. The influence on numerous organs and bodily parts has been the subject of several highly regarded study. Only material pertaining to the effects of digital gadgets on the eye and issues & concerns linked to it is being discussed by the authors in connection to the current study and its scope [4].

The "Computer vision syndrome" (CVS) is result of the increased usage of digital devices with screens. (Aggarwal, 2021). Long-term screen use, more digital work and study, computer use, and other screen-using gadgets can all contribute to user complaints of eye fatigue (Agarwal, 2013). The digital practices have a significant negative influence on users' physical and mental health [5]. On the other side, physical effect comprises the unpleasant or detrimental changes one might feel in the body due to excessive usage of these digital gadgets. Mental health encompasses behaviour, performance, motivation, and anxiety associated factors [6]. At the health side, various disorders like stammering are arising due to stress, sleep problems and change in temperaments [7-10].

According to survey-based studies, these digital ways of studies and work have a significant negative influence on users' physical and mental health. Therefore, in advancement with prior studies, the current study proposed improved methodologies. In this study, LCTM Chrome extensions address the solution of To-Do List, which aims to assist users in managing their tasks efficiently. This module includes voice recognition technology, allowing users to add tasks to the extension without typing. Users can also set a specific time for completing the task, and the extension will generate a pop-up notification five minutes before the set time. This feature helps users to keep track of their schedule and reminds them to complete their tasks on time. The To-Do List module is designed to improve users' productivity and help them manage their time effectively. Also, scheduling meetings is the challenge for the user to keep the meet track with time, and a possible solution to address this issue is needed.

The proposed meeting scheduling is a powerful tool for users who want to manage their meetings seamlessly. Users can easily enter the meeting link and time in the text box, and a pop-up notification will be generated 5 minutes before the meeting starts. This feature ensures that users do not forget their meetings and are always on time. The pop-up notification will have two options, 'join meet' and 'cancel,' giving users the flexibility to decide if they want to attend the meeting or not. By clicking on 'join meet,' users will be redirected to the meeting tab using the link provided in the extension, saving them time and effort. These modules aim to provide a convenient and efficient solution for managing time and tasks, enabling users to focus on their work while reducing stress and increasing productivity.

1.1 Highlights of Proposed Work

The proposed Web Browser Extension is a software component that can be installed on the Google Chrome web browser, which enhances the functionality and adds new features to the browser with below highlights

- It is a Chrome extension designed to help users manage their time effectively.
- The extension offers tools for screen time monitoring, to-do list management, and scheduling meetings.
- The extension features a modular design that allows users to increase the productivity.
- The Extension allows users to customize their preferred time settings according to their needs.
- Daily task can be created by the speech recognition for the user.
- Meeting can be schedule as per the time and user will get notified.

1.2 Objectives

The specific objectives are as below:

- To generate a popup after completing specific work time and prompt the user to take a break.
- To allow users to pre-plan daily work using speech recognition.

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- To enable users to insert meeting links with a specified time and notify them 5 minutes before the meeting.

Before introducing this article, we were looking for web browser tools for the time management and managing daily, but we won't find any tool or an extension for the task we want. There are existing pomodoro tools, but they are in the website form not having any browser compatible tools [11-14].

- We conducted the Google form survey asking about the project to some laptop users and got some reviews.
- We get to know about the use case of the Project which users were face in the daily life "Searching for time management, daily task software and tried using some screen time management web pages but where not a very good experience for us".
- And there were no such Chrome Extension Product for the problems facing by the users.
- "Mac users are using time up mac application but it's not available on windows".

1.4 Flaws in Existing System

- Need to continuously run the web page
- Need to change the tab to start or restart the timer
- Not having a better user experience
- The user Ignores the alarm because it doesn't affect the existing process of the browser.
- Most of the people are unaware of the existing platform

1.5 Target Audience in screen user Survey

- Primary Audience Students
- Secondary Audience Industry Professionals

2. Methods

To develop the proposed Chrome extension, the availability of Chrome's APIs and documentation are needed. To-Do List module was created using Google's Cloud Speech-to-Text API for the voice recognition feature [15-16]. The Meeting Scheduler module requires the user's ability to provide a valid meeting link and the availability of the meeting service at the specified time. The extension's effectiveness may be impacted by the user's system and hardware specifications.

2.1 Tools and Technologies Used

The project involves the development of a Chrome extension that has three modules namely Screen Time Management, To-Do List, and Meeting Scheduling. All these modules were created using following list of tools. **JavaScript was** utilized to dynamically manipulate HTML and CSS. The Chrome extension utilized HTML and CSS to create the user interface of the extension. Developer Tools were utilized that include the ability to inspect and edit HTML, CSS, and JavaScript, and to view network activity and console output. The To-Do List module of the Chrome extension utilized the Web Speech API to allow users to add tasks to their to-do list by speaking into their microphone. The Git and GitHub were used to manage source code and to collaborate with team members. Visual Studio Code has been used to write and edit code, and to debug and test the Chrome extension. Local **Chrome Storage was utilized** to store the start time and end time of work and break sessions, as well as the number of times the user has skipped the break sessions. The locally stored data can be retrieved and updated by the extension to determine when to generate pop-ups for breaks and when to enforce the break if the user has exceeded the skip limit.

2.2 Features of Proposed Extension

There are three main components of the proposed Chrome Extension as below.

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A. Screen Time Management

The extension will track the user's work time and generate a popup to start the break time after the work time is complete. The user will be able to skip the break time only three times, after which the break time will be mandatory. The user will be able to customize the work and break times as per their preference.

B. To-Do List

The extension will allow the user to add tasks to the to-do list [15]. The user would allow assigning a time for each task and the extension will generate a popup 5 minutes before the start time of the task.
The user would be used to mark tasks as completed and remove them from the list.

C. Meeting Scheduler

The extension will allow the user to enter the meeting link and specify the meeting time. The extension will generate a popup 5 minutes before the start time of the meeting. The popup will include options to join the meeting or cancel it. If the user chooses to join the meeting, the extension will redirect them to the meeting tab using the provided link.

2.3 System Design

Figure 1 depicts the system architecture with its three main modules. Figures 2 through 4 show the architectures of module 1, module 2 and module 3 respectively.
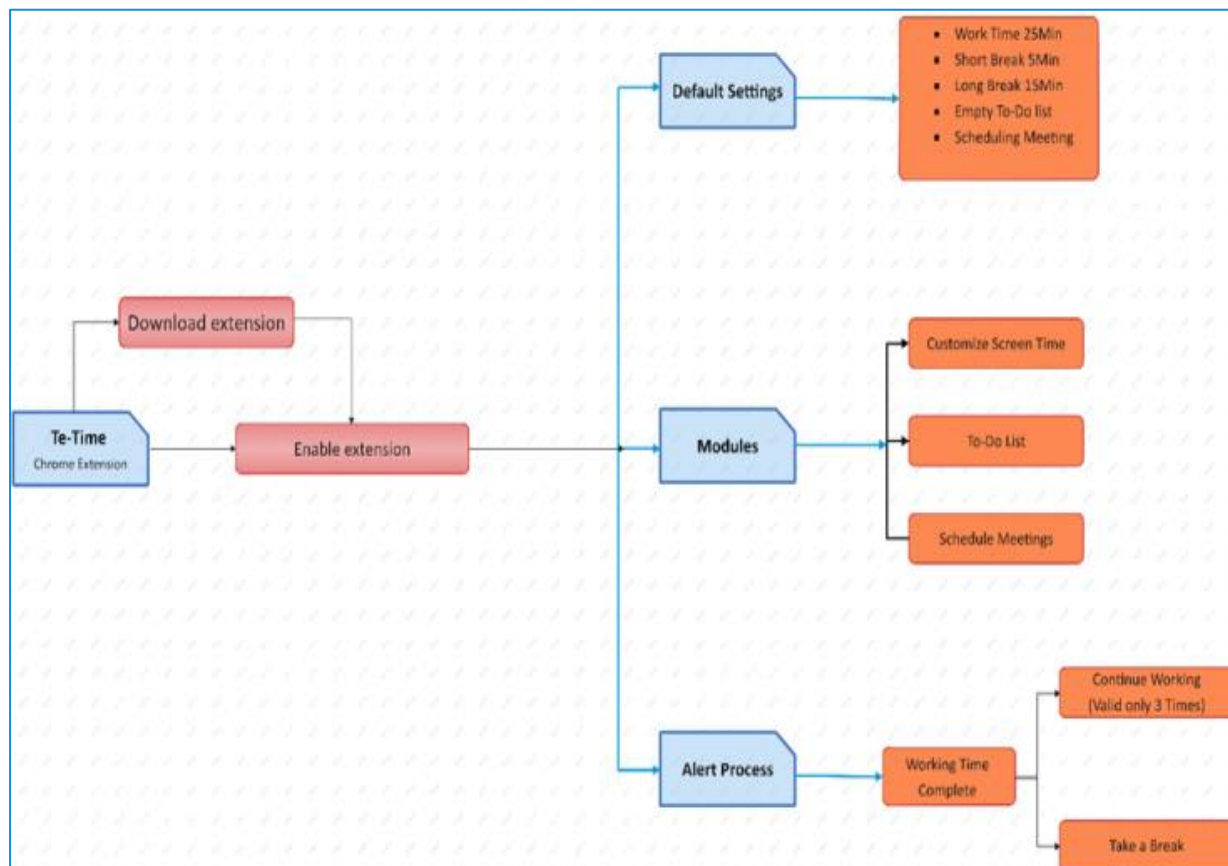

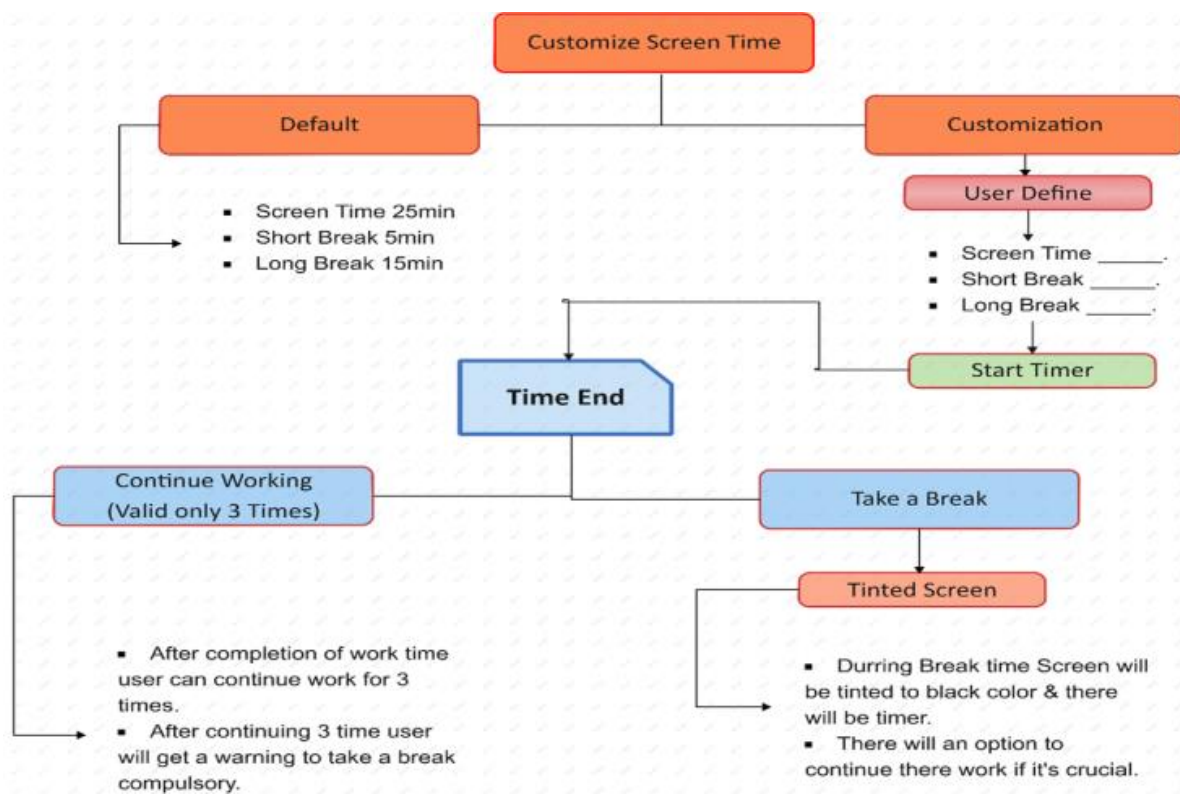**Figure 1 System Architecture**

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Figure 2 Module 1 Architecture
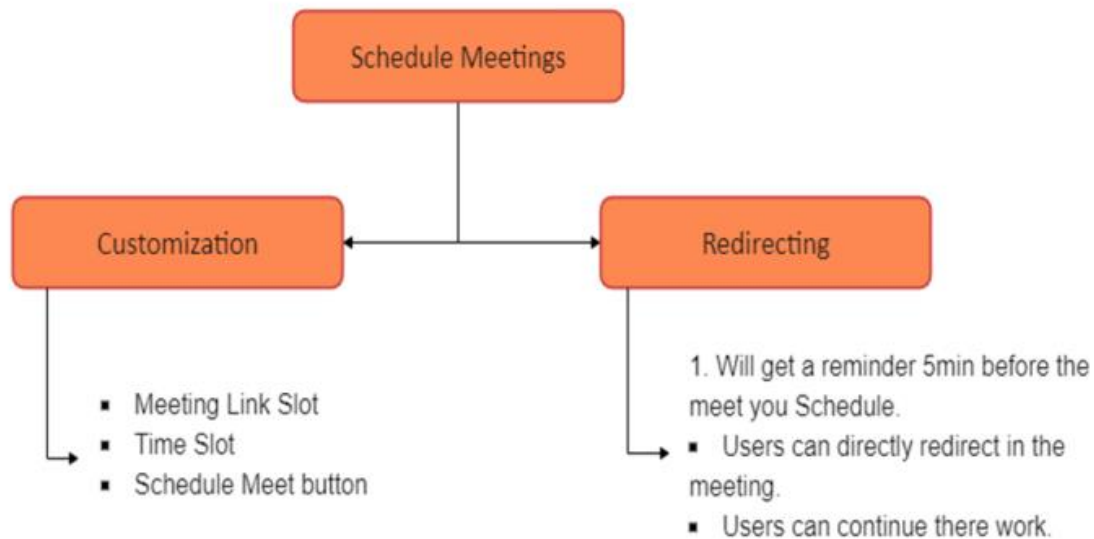

Figure 3 Module 2 Architecture

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Figure 4 Module 3 Architecture

2.4 Survey Questions

To know the importance of created Extension called "Promodora", a survey was conducted whether users are getting benefits of this tool. Table 1 shows types are questions were included in the survey before and after use of Proposed Chrome Extension. Users have to report their feedback by giving rating points between 1 and 5 such as 1 for no, 2 for very mild, 3 for mild, 4 for moderate, and 5 for High.

Table 1 Survey Questions

	Tingling feeling in the Fingers (Rating 1-5)	Headaches (Rating 1-5)	Eye strain (Rating 1-5)	Feeling of dry or Soreness (Rating 1-5)	Anxiety and Depression (Rating 1-5)	Feeling of Energetic (Rating 1-5)	Total Score2
Person 1							
Person 2							
Person 3							
Person 4							
Person 5							
Person 6							
Person 7							
Person 8							
Person 9							
Person 10							

The survey shown in Table 1 was conducted before and after use of Chrome Extension while working on Computer or Laptop screen.

3. RESULTS

This section presents the results in the forms of figures, charts and tables. Figure 5 interface of Module 1.
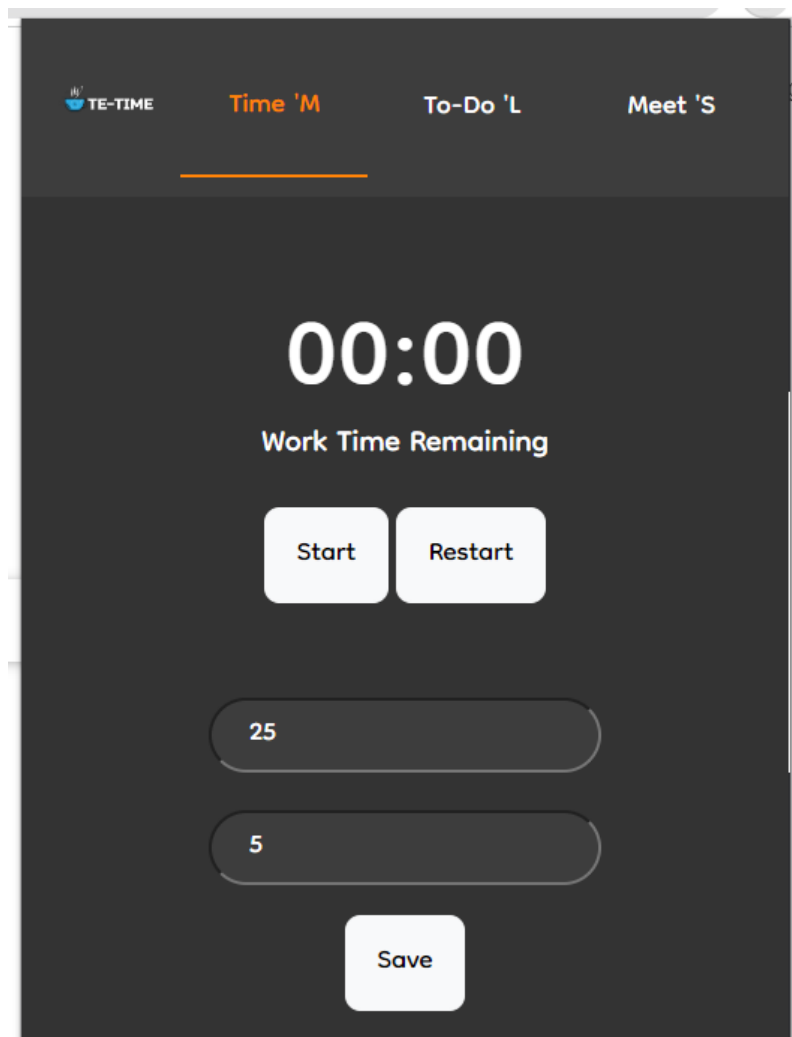
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Figure 5 Module 1 Interface

In the time management module, users have the ability to personalize their time allocation by setting designated periods for work and break intervals. For instance, they can define a work time of 25 minutes followed by a break time of 5 minutes. This customized time configuration can be saved and initiated.

Once the work time is completed, users will receive an alert notification on their screen, indicating the commencement of the break period. During the break time, the screen or chrome tabs will be dimmed or tented to visually signify the importance of taking a break and to minimize distractions. Figure 6 displays notification window indicating the start of break time. Figure 7 shows the idle screen indicating the break time is going on. While, Figure 8 shows window for notifying users to rejoin the work after finishing of break-time,

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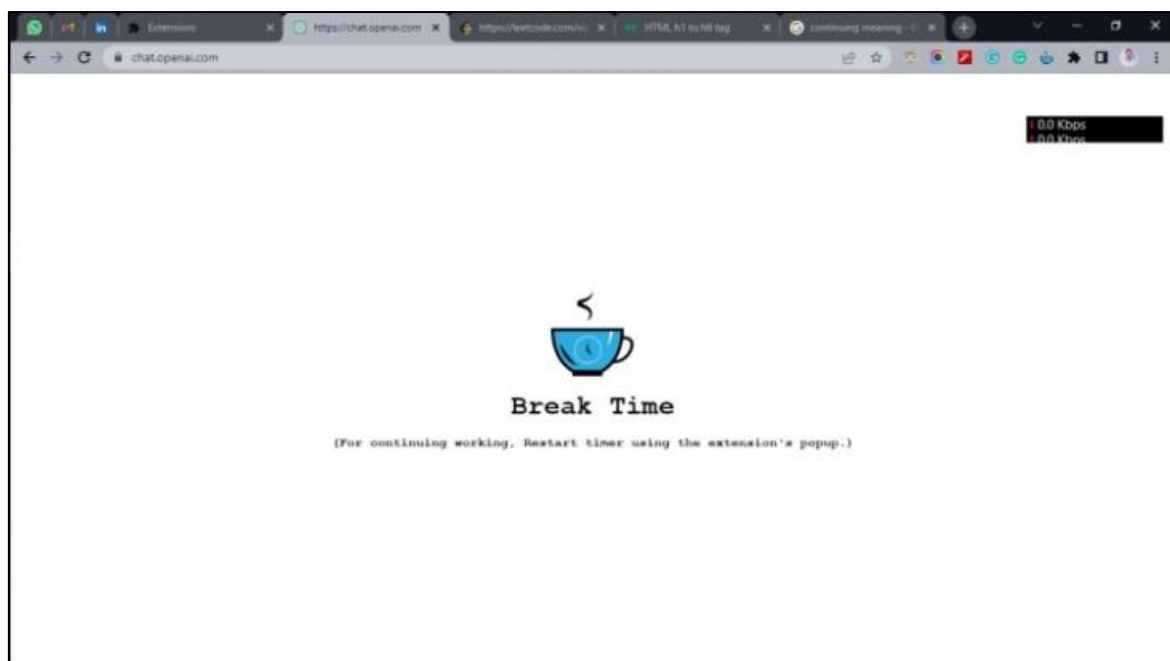**Figure 6 Notification window for start of break time**
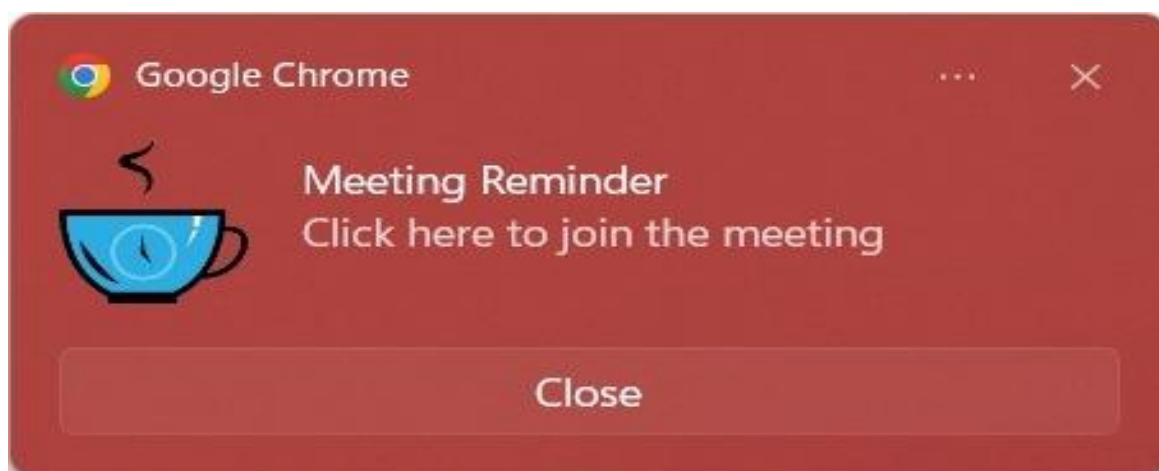

Figure 7 Break Screen Message

Figure 8 Notification window for joining work after finishing of break time

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Within the to-do list module, users can effortlessly add tasks by simply clicking on the microphone icon, which initiates and concludes the recording of the task [15]. Once the task has been successfully saved, users have the option to mark it as completed or delete it entirely from the list. Figure 9 depicts the option of creating To-Do list.
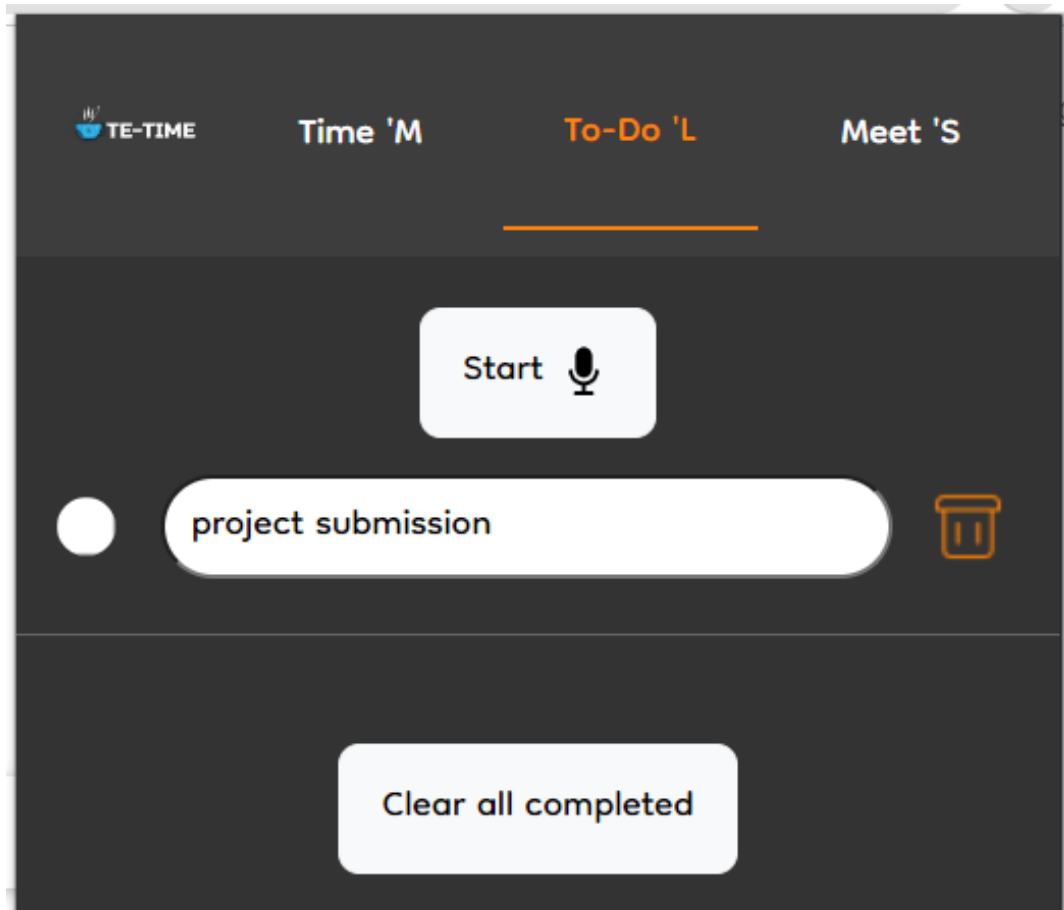

Figure 9 Interface to create To-Do list

In the meeting schedule module, users can efficiently schedule meetings by providing the meeting link and assigning a relevant title, taking into consideration the designated meeting time. As the meeting is scheduled, an alert notification will be displayed on the screen five minutes prior to the meeting's start time, ensuring users are promptly reminded. Additionally, users will have the convenience of joining the meeting directly from the notification. Figure 10 displays interface to schedule future meetings.
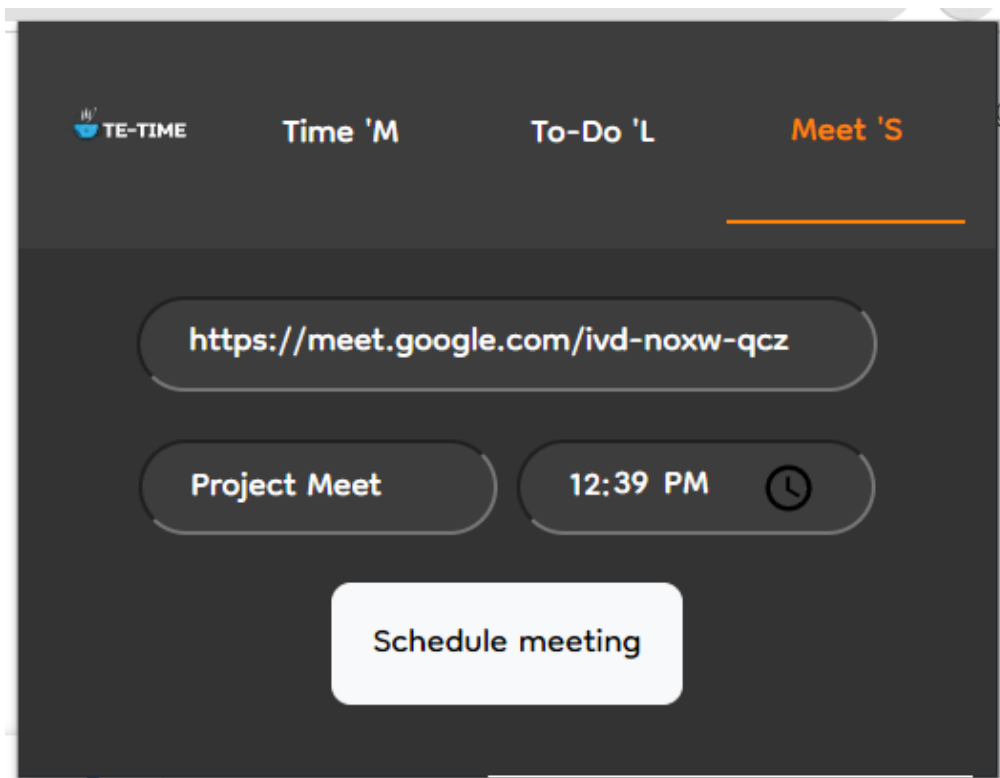
Figure 10 Interface to schedule future meetings

Table 2 Ratings of users about their screen time before usage of Promodora Extension

	Tingling feeling in the Fingers (Rating 1-5)	Headaches (Rating 1-5)	Eye strain (Rating 1-5)	Feeling of dry or Soreness (Rating 1-5)	Anxiety and Depression (Rating 1-5)	Feeling of Energetic (Rating 1-5)	Total Score1
Person 1	3	1	3	1	3	2	13
Person 2	3	2	4	2	3	2	16
Person 3	2	1	3	3	3	1	13
Person 4	1	0	4	2	4	2	13
Person 5	2	1	4	1	2	1	11
Person 6	3	2	3	1	3	2	14
Person 7	3	3	4	2	4	1	17
Person 8	4	1	3	1	5	2	16
Person 9	3	0	4	2	3	2	14
Person 10	3	1	4	3	4	1	16

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Table 3 Ratings of users about their screen time after usage of Promodora Extension

	Tingling feeling in the Fingers (Rating 1-5)	Headaches (Rating 1-5)	Eye strain (Rating 1-5)	Feeling of dry or Soreness (Rating 1-5)	Anxiety and Depression (Rating 1-5)	Feeling of Energetic (Rating 1-5)	Total Score2
Person 1	1	0	1	1	1	5	9
Person 2	1	1	1	2	2	4	11
Person 3	0	0	0	1	0	4	5
Person 4	1	1	1	1	1	5	10
Person 5	2	0	2	2	1	5	12
Person 6	1	1	1	1	1	5	10
Person 7	0	2	1	2	2	4	11
Person 8	1	0	1	2	2	5	11
Person 9	0	1	0	1	0	4	6
Person 10	1	2	1	0	1	5	10

Table 2 presents ratings of users about their screen time after utilizing the proposed extension "promodora". While, Table 3 displays the ratings of the same users after the usage of this extension.

1.4 Two tailed t-test Analysis

Before performing the two tailed t-test, null hypothesis was set as: "there is significance difference between the ratings of users after and before usage of the " promodora".

The two tailed t-test was applied on the scores of user experience that captured before and after usage of proposed web browser extension called "promodora". Table 4 shows the results generated after applying the t-test on the ratings of users as shown in the Table 2 and Table 3.

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Table 4 t-Test: Two-Sample Assuming Unequal Variances

Mean	14.444444	9.5555556
Variance	3.7777778	5.7777778
Observations	9	9
Hypothesized Mean Difference	15	
df	15	
t Stat	-9.8127824	
P(T<=t) one-tail	3.202E-08	
t Critical one-tail	1.7530504	
P(T<=t) two-tail	6.404E-08	
t Critical two-tail	2.1314495	

From Table 4, it is seen that the p-value of two-tail t-test is less than 0.05. Therefore, the null hypothesis is rejected by indicating that the usage of extension "promodora" can be beneficial to users against conducted survey.

1.5 Future work and & Limitations

The scope of this article includes the development of a Chrome extension that includes three modules: Screen Time Management, To-Do List, and Meeting Scheduler. The extension aims to help users manage their time effectively and increase their productivity by simplifying tasks such as managing work and break times, creating to-do lists, and scheduling meetings.

One of the limitations of the proposed extension is the compatibility of the extension with various versions of Chrome and other browsers. The extension has been developed and tested on the latest version of Google Chrome and may not work as expected on other browsers or earlier versions of Chrome. Additionally, the extension may not work effectively on certain devices or systems due to hardware or software limitations. Another limitation is that the voice recognition feature in the To-Do List module may not be as accurate or reliable as other input methods and may not be suitable for all users.

Finally, the extension may not be able to prevent all distractions or interruptions, as some distractions may be outside of the scope of the extension's functionality.

4. CONCLUSIONS

In the LCTM Chrome extension offers a solution to help users manage their time more effectively and efficiently by providing useful tools for scheduling meetings, managing to-do lists, and monitoring screen time. The extension's modular design makes it easy to update and maintain the code and allows for easy scaling as new features are added. The Pomodoro technique implemented in the extension helps users maintain focus and productivity during work time, while the daily task manager feature ensures they don't miss important meetings. Overall, the LCTM extension aims to provide a better user experience and aid users in managing their time efficiently by customizing their work time, short breaks, long breaks, and daily tasks.

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