International Journal of Engineering Technology and Management Sciences
Website: ijetms.in Issue: 5 Volume No.7 September - October – 2023
DOI:10.46647/ijetms.2023.v07i05.014 ISSN: 2581-4621

REMINDEE - A Break Time Reminder Application

Vijaya Kumar S[1], Jeenath Laila N[2] , Dr G Tamilpavai[3]
[1]*UG - Computer Science and Engineering, GCE , Tirunelveli, TamilNadu*
[2]*Assistant Professor, Computer Science and Engineering, GCE, Tirunelveli, TamilNadu*
[3]*Professor, Computer Science and Engineering, GCE, Tirunelveli, TamilNadu*
Corresponding Author Orcid ID : https://orcid.org/0009-0006-3471-146X

ABSTRACT
The usage of mobile devices has been steadily increasing, with the average time spent on mobile devices exceeding 4.5 hours per day in 2022, leading to negative impacts on users' health. In response to this issue, the REMINDEE project was developed to create a mobile app using Flutter that promotes regular breaks from screen time. The app encourages users to take short breaks, following the 20-20-20 rule, which involves looking away from the screen every 20 minutes, for 20 seconds, at an object that is 20 feet away. During break time, the app blocks all actions on the device, ensuring that the user cannot continue using the device. The project aims to reduce screen time and encourage users to take regular breaks, which can help reduce eye strain, prevent headaches, and improve overall health. The app also allows users to customize their break time, set reminders, and view their usage statistics to help monitor their progress. Ultimately, the REMINDEE project aims to promote healthy screen time habits, allowing users to maintain their health and well-being while still staying connected to their devices.
Keywords—Break time, Mobile app,screen time ,20-20-20 rule

1. Introduction

The REMINDEE project focuses on the domain of promoting healthy screen time habits and addressing the negative impacts of excessive device usage. With the increasing prevalence of mobile devices and their widespread use, concerns about the detrimental effects on users' health have grown. To tackle this issue, REMINDEE takes a proactive approach by implementing the 20-20-20 rule, which suggests taking breaks every 20 minutes to focus on an object 20 feet away for 20 seconds. By encouraging users to detach from their screens and rest their eyes regularly, REMINDEE aims to mitigate eye strain, headaches, and other related issues.To achieve its objectives, REMINDEE utilizes the Flutter framework to develop a mobile app that offers a range of features. The app includes a reminder management module, allowing users to customize break time intervals and receive personalized reminders tailored to their preferences. This empowers users to establish their own healthy screen time routines. Additionally, REMINDEE incorporates a usage analytics module, which tracks and analyzes users' screen time patterns and provides comprehensive reports and statistics. By visualizing usage data, users can gain insights into their digital habits and make informed decisions about managing their screen time effectively.By combining the 20-20-20 rule, reminder management, and usage analytics, REMINDEE provides users with a holistic approach to promoting healthier device usage. The app aims to strike a balance between staying connected and ensuring the well-being of users. Through its user-friendly interface and personalized features, REMINDEE empowers individuals to take control of their screen time, make conscious choices, and establish healthier habits in today's digital age.

1.1 Related Work

W. Jumpamule [1] conducted a study on the "Reminding System for Safety Smartphone Using to Reduce Symptoms of Computer Vision Syndrome" in 2017. The study aimed to develop a reminding system that would alleviate the symptoms associated with computer vision syndrome. The system effectively reduced eye strain and fatigue, suggesting its potential to improve the well-

International Journal of Engineering Technology and Management Sciences
Website: ijetms.in Issue: 5 Volume No.7 September - October – 2023
DOI:10.46647/ijetms.2023.v07i05.014 ISSN: 2581-4621

being of smart phone users. One advantage of this study is the focus on a specific health issue related to smart phone usage. However, a potential disadvantage is the lack of detailed information on the specific features and implementation of the reminding system.

Y. Li et al. explored [2] the topic of "Smartphone Addiction: The Roles of Craving, Compulsive Behavior, and the Seeking of Sociality" in 2018. The study investigated the relationship between smart phone addiction and the desire for social interaction. The findings revealed a positive correlation between smart phone addiction and the seeking of sociality, indicating that individuals with higher levels of smart phone addiction are more likely to engage in compulsive smart phone use to fulfill their social needs. One advantage of this study is the inclusion of psychological factors like craving and compulsive behavior. However, a potential limitation is the reliance on self-report measures, which may introduce biases in the data.

Mohamed Rizwan et al.'s research [13,17] underscores the recession resilience of Petroleum Retail Outlets, emphasizing effective management practices and addressing challenges like compliance, competition, and evolving consumer preferences. Their insights inform need for the break time in the in India's fuel retail sector.

In summary, both studies contribute valuable insights to the field of smartphone usage and its impact on users' well-being. The study by W. Jumpamule demonstrates the effectiveness of a reminding system in reducing symptoms of computer vision syndrome. On the other hand, Y. Li et al.'s study highlights the relationship between smartphone addiction and sociality seeking. These findings can inform the development of interventions and strategies to promote healthier smartphone use. However, further research is needed to delve deeper into the specific mechanisms and implementation details of the reminding system and to explore additional factors influencing smartphone addiction.

The existing systems described in the literature review have certain limitations. The first system focuses on reducing the symptoms of Computer Vision Syndrome (CVS) but lacks a comprehensive approach to address the underlying causes or provide solutions for managing smartphone usage. The second system explores the psychological aspects of smartphone addiction, but it falls short in providing practical interventions or tools to effectively manage and reduce addiction. These limitations highlight the need for a more comprehensive solution that addresses the broader challenges of smartphone addiction and promotes healthier device habits.The existing systems, including apps like Focus@Will, Break Timer, Moment, Forest, and EyeCare, have their own limitations. These apps offer basic features for screen time monitoring and break reminders, but they may lack deeper insights into user behavior and personalized recommendations. Furthermore, these apps may focus on only one aspect of healthy device usage, such as eye care or productivity, without addressing the full spectrum of digital wellbeing.

2. Experimental Methods or Methodology

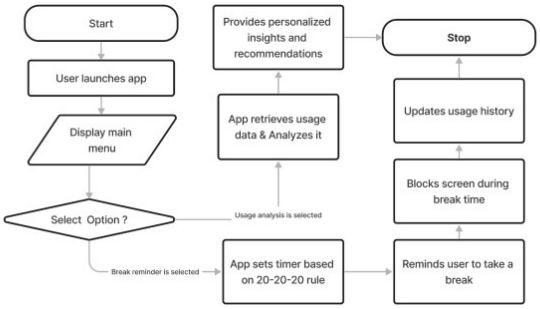

Fig 1. Block diagram of Remindee

The proposed system aims to overcome the limitations of the existing system by offering enhanced functionalities for reminder management, usage analytics, and wellness tips [3] and

DOI:10.46647/ijetms.2023.v07i05.014 ISSN: 2581-4621

recommendations. It provides a comprehensive reminder management feature that allows users to set and manage reminders for various tasks and activities. The usage analytics component provides detailed insights into the user's screen time habits, allowing them to track and analyze their usage patterns. Additionally, the system offers personalized wellness tips and recommendations to promote healthy device usage and reduce the symptoms of computer vision syndrome. By integrating these features, the proposed system aims to provide users with a robust and user-friendly platform for effective reminder management, insightful usage analytics, and personalized wellness guidance.

2.1 Block Diagram

The Remindee app's black diagram illustrates its user flow and key features. Upon launching the app, users are presented with a main menu where they can choose different options. If they select "Break reminder," the app provides personalized insights and recommendations for taking regular breaks. It updates the usage history by retrieving and analyzing screen time data. The app also includes a usage analysis feature, allowing users to access detailed information about their screen time habits. By setting timers based on the 20-20-20 rule, the app reminds users to take breaks and blocks the screen during designated break times. Remindee aims to promote healthy device usage and enhance users' overall well-being.

2.2 Working Principle

The REMINDEE project employs algorithms and functionalities to promote healthy screen time habits and encourage regular breaks from mobile device usage. The app incorporates the following key elements:

1. 20-20-20 Rule Timer Algorithm: This algorithm reminds users to take a break every 20 minutes, following the recommended 20-20-20 rule. It blocks device actions during the break, ensuring users detach from their screens and alleviate eye strain.
2. Screen Usage Monitoring Algorithm: This algorithm tracks and monitors users' screen time, providing usage statistics and personalized recommendations to reduce excessive usage. It also notifies users when they reach their daily screen time limit, promoting awareness and healthier habits.

By combining these algorithms, REMINDEE empowers users to manage their screen time effectively. The app prompts regular breaks, monitors usage, and offers personalized recommendations, promoting a healthier balance between screen time and rest.

2.3 Methodology

2.3.1 *User Interface Design*

The User Interface Design module is responsible for creating a visually appealing and user-friendly interface for the Remindee app. Designers utilize Flutter's UI framework to develop screens, layouts, and navigation components. The focus is on creating intuitive user interactions, ensuring easy navigation throughout the app. Designers pay attention to elements such as color schemes, typography, iconography, and spacing to enhance the overall visual aesthetic. The goal is to provide users with a seamless and enjoyable experience while using the app.

2.3.2 *Reminder Management*

The Reminder Management module allows users to manage their reminders and break time settings. Users can set their preferred break time intervals, customize reminder preferences, and adjust notification settings according to their needs. The module provides a user-friendly interface for configuring the frequency and duration of breaks, selecting different reminder options (such as push notifications or audible alerts), and personalizing settings to align with their preferences. By giving users control over their reminders, this module promotes a healthier approach to device usage and helps users incorporate regular breaks into their daily routines..

2.3.3 *Usage Analytics*

The Usage Analytics module tracks and analyzes users' screen time and app usage patterns. It collects data on the time spent on various apps, daily screen time, and usage statistics. Users can access comprehensive usage reports, graphs, charts, and statistics to gain insights into their digital

International Journal of Engineering Technology and Management Sciences
Website: ijetms.in Issue: 5 Volume No.7 September - October – 2023
DOI:10.46647/ijetms.2023.v07i05.014 ISSN: 2581-4621

habits. This module provides valuable information that helps users understand their usage patterns, identify potential areas of concern, and make informed decisions about managing their screen time effectively. By visualizing usage data, users can take proactive steps towards achieving a healthier balance in their digital lives.

2.3.4 *Wellness Tips And Recommendations*

The Wellness Tips and Recommendations module offers users curated content related to healthy screen time habits and overall well-being. Users can access a variety of articles, tips, and recommendations that cover topics such as sleep hygiene, eye care, posture, and digital detox. This module serves as a source of education and motivation, encouraging users to adopt healthy habits and make conscious choices about their device usage. By providing practical advice and insights, this module empowers users to develop a balanced and mindful approach to their digital lives, promoting their overall wellness and enhancing their relationship with technology.

3. Results and Discussion

Fig 2 showcases the homepage of Remindee, a user-friendly mobile app promoting healthier screen time habits. It features a graphical representation of screen time distribution, top two most used apps, and quick navigation to reminder, analysis, and wellness tips sections. The interface is intuitive and visually appealing.

Fig. 2. Homepage for Remindee

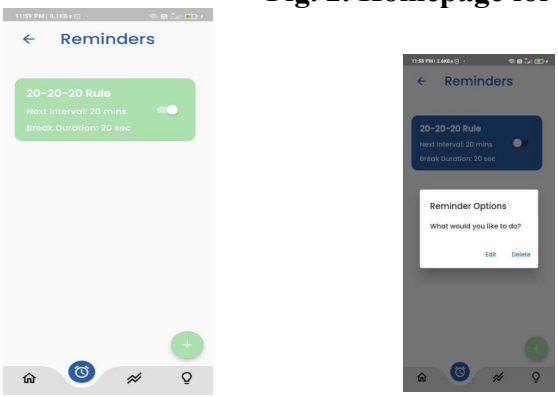

Fig. 3. Reminders page for Remindee

Fig 3 presents the reminders page of Remindee, where users can customize their break time settings and set personalized reminders. This page allows users to configure the frequency and duration of their breaks, choose different reminder options, and adjust notification settings according to their preferences. The intuitive layout and user-friendly interface make it easy for users to manage and personalize their reminders, enabling them to maintain healthy screen time habits.

International Journal of Engineering Technology and Management Sciences
Website: ijetms.in Issue: 5 Volume No.7 September - October – 2023
DOI:10.46647/ijetms.2023.v07i05.014 ISSN: 2581-4621

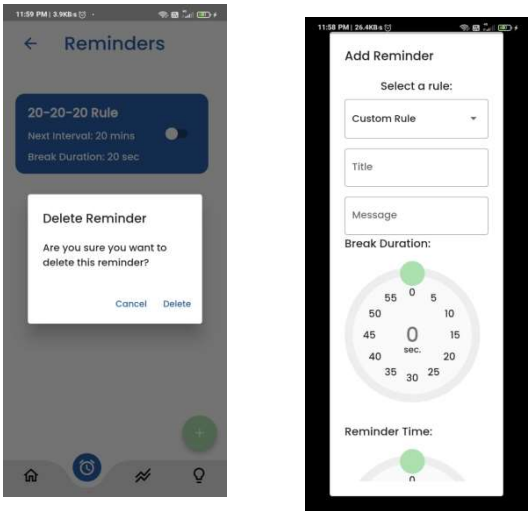

Fig4. Reminder Management for Remindee

In Fig 4, the Reminder Management page of Remindee is depicted. This page provides users with options to edit and delete their existing reminders. Users can make adjustments to their break time intervals, reminder preferences, and notification settings as needed. By offering these management features, Remindee empowers users to have full control over their reminders and customize them according to their individual needs and preferences. The intuitive interface and easy-to-use functionalities make it convenient for users to modify their reminders and ensure a personalized and effective reminder system.

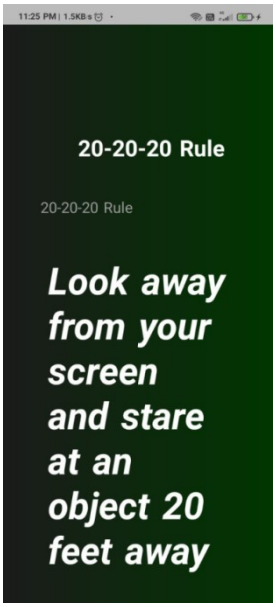

Fig 5: Break Time Reminder for 20-20-20 Rule

Fig 5 showcases the Break Time Reminder feature in Remindee, specifically designed to support the 20-20-20 rule. This rule prompts users to take a 20-second break every 20 minutes and focus on an object 20 feet away, reducing eye strain and promoting eye health. The Break Time Reminder in Remindee ensures that users adhere to this rule by providing timely notifications and visual cues. When the reminder is triggered, the app blocks the screen temporarily, encouraging users to take a short break from their devices and engage in activities that relax their eyes. This feature aims to improve users' well-being and foster healthier screen time habits.

International Journal of Engineering Technology and Management Sciences
Website: ijetms.in Issue: 5 Volume No.7 September - October – 2023
DOI:10.46647/ijetms.2023.v07i05.014 ISSN: 2581-4621

Fig 6 represents the Analysis page of Remindee. This page provides users with valuable insights and analytics related to their screen time and app usage patterns. Users can view detailed graphs, charts, and statistics that depict their daily screen time, app usage distribution, and trends over time. By analyzing this data, users can gain a better understanding of their digital habits and identify areas where they can make improvements. The Analysis page empowers users to track their progress, set goals, and make informed decisions to achieve a healthier balance between their digital engagement and overall well-being.

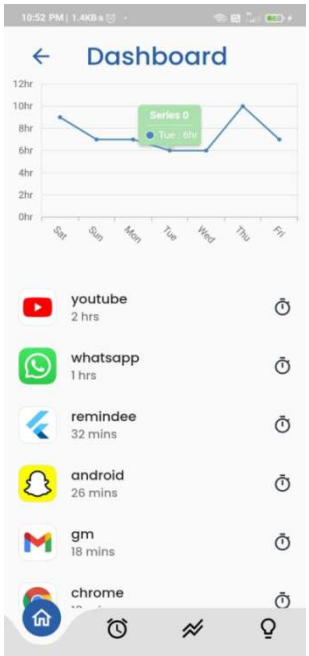

Fig 6: Analysis page for Remindee

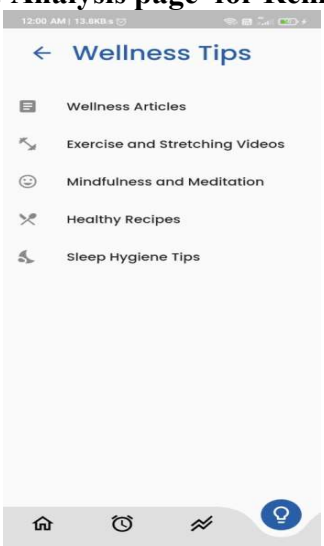

Fig 7: Wellness Tips for Remindee

Fig 7 showcases the Wellness Tips page of Remindee. This page offers users a collection of curated wellness tips, articles, and recommendations related to healthy screen time habits and overall well-being. Users can access valuable insights on topics such as sleep hygiene, eye care, posture, and digital detox. By providing educational content, Remindee aims to promote a holistic approach to well-being beyond just managing screen time. Users can benefit from the tips and recommendations to enhance their digital habits and adopt a balanced and mindful approach to their device usage. The Wellness Tips page serves as a valuable resource for users to stay informed and make informed decisions about their well-being.

DOI:10.46647/ijetms.2023.v07i05.014 ISSN: 2581-4621

CONCLUSION

In conclusion, the REMINDEE project successfully developed a mobile app using Flutter to address concerns related to excessive screen time. The app prioritized promoting healthy habits through the implementation of the 20-20-20 rule and included modules for reminder management, usage analytics, wellness tips, and notification management. By providing personalized features, valuable insights, educational content, and efficient notifications, REMINDEE aimed to improve users' overall well-being and encourage a balanced approach to digital engagement. Future enhancements will focus on incorporating gamification elements to make the app more engaging and motivating for users. By leveraging gamification techniques, REMINDEE aims to further encourage users to adhere to healthy screen time practices and foster a sense of accomplishment and enjoyment in their digital well-being journey.

References

1. Jumpamule, W. (2017). Reminding System for Safety Smartphone Using to Reduce Symptoms of Computer Vision Syndrome. International Journal of Interactive Mobile Technologies, 11(6), 91-98.
2. Li Y., Li L., Feng X., & Zhang, Y. (2018). Smartphone Addiction: The Roles of Craving, Compulsive Behavior, and the Seeking of Sociality.
3. Compulsive Behavior , and the Seeking of Sociality. Frontiers in Psychology, 9, 1541. doi: 10.3389/fpsyg.2018.01541
4. Orben A., & Przybylski A. K. (2019). The association between adolescent well-being and digital technology use. Nature Human Behaviour, 3(2), 173-182. doi:10.1038/s41562-018-0506-1
5. Hauge, B. R., Knarvik, U., & Kvam, P. H. (2019). Mobile Phone Addiction Among Norwegian Adolescents: Prevalence and Associated Factors. Scandinavian Journal of Child and Adolescent Psychiatry and Psychology, 7(1), 14-22.
6. Elhai, J. D., Levine, J. C., Dvorak, R. D., & Hall, B. J. (2016). Fear of Missing Out, Need for Touch, Anxiety and Depression are Related to Problematic Smartphone Use. Computers in Human Behavior, 63, 509-516.
7. Thomée, S., Härenstam, A., & Hagberg, M. (2011). Mobile Phone Use and Stress, Sleep Disturbances, and Symptoms of Depression Among Young Adults—A Prospective Cohort Study. BMC Public Health, 11(1), 66.
8. Rozgonjuk, D., Saal, K., Täht, K., & Toompere, K. (2018). Mobile Phone Addiction, Phubbing, and Impulse Control: Empirical Evidence. Computers in Human Behavior, 78, 411-420.
9. Panova, T., & Carbonell, X. (2018). Is Smartphone Addiction Really an Addiction? Journal of Behavioral Addictions, 7(2), 252-259.
10. Lin, Y. H., Lin, Y. C., Lee, Y. H., Lin, P. H., Lin, S. H., Chang, L. R., & Tseng, H. W. (2016). Time distortion associated with smartphone addiction: Identifying smartphone addiction via a mobile application (App). Journal of Psychiatric Research, 65, 139-145.
11. Roberts, J. A., Yaya, L. H., & Manolis, C. (2014). The invisible addiction: Cell-phone activities and addiction among male and female college students. Journal of Behavioral Addictions, 3(4), 254-265.
12. Chotpitayasunondh, V., & Douglas, K. M. (2016). How "phubbing" becomes the norm: The antecedents and consequences of snubbing via smartphone. Computers in Human Behavior, 63, 9-18.
13. Mohamed Rizwan, Dr.K.Karthikeyan 2023, "Petroleum Retail Outlet as a Sustainable Entrepreneurial business even during pandemic situations and its operational risks", Journal of Population Therapeutics & Clinical Pharmacology, Vol 30(12), e31–e40. https://doi.org/10.47750/jptcp.2023.30.12.005
14. Turel, O., Serenko, A., & Bontis, N. (2019). Family and work-related consequences of addiction to organizational pervasive technologies. Information & Management, 56(3), 403-413.

DOI:10.46647/ijetms.2023.v07i05.014 ISSN: 2581-4621

15. Clayton, R. B., Leshner, G., & Almond, A. (2015). The extended iSelf: The impact of iPhone separation on cognition, emotion, and physiology. Journal of Computer-Mediated Communication, 20(2), 119-135.
16. Chitti T.N; Saravanan Alagarsamy. "Collaborative approach of AI in Internet of Things to incorporate M2M Interaction". *International Research Journal on Advanced Science Hub*, 5, Issue 05S, 2023, 301-304. doi: 10.47392/irjash.2023.S040
17. Wilmer, H. H., Sherman, L. E., & Chein, J. M. (2017). Smartphones and Cognition: A Review of Research Exploring the Links between Mobile Technology Habits and Cognitive Functioning. Frontiers in Psychology, 8, 605.
18. Anagha Ajoykumar; Venkatesan M. "Study of Anomalous Subgraph Detection in Social Networks". *International Research Journal on Advanced Science Hub*, 5, Issue 05S, 2023, 287-300. doi: 10.47392/irjash.2023.S039
19. Mohamed Rizwan, Dr.K.Karthikeyan 2023, "Analyzing the Environmental and Public Health Impacts of Increased Petrol and Diesel consumption and its emissions in relation to Alternate Fuels", Journal of Population Therapeutics & Clinical Pharmacology, Vol 30(11), e110–e119. https://doi.org/10.47750/jptcp.2023.30.11.013
20. Sakina Bathool; Ronald Santhosh; Rahul Sharma; Sabeeha Tabassum; Lavanaya B Koppal. "Smartphone Position Tracking Using GNSS". *International Research Journal on Advanced Science Hub*, 5, Issue 05S, 2023, 265-270. doi: 10.47392/irjash.2023.S036
21. Amogh Mohta; Anand Swaroop; Katkuri Fhanindra Reddy; Manjula R. "Automatic License Plate Recognition System Using YOLOv4". *International Research Journal on Advanced Science Hub*, 5, Issue 05S, 2023, 280-286. doi: 10.47392/irjash.2023.S038
22. Kwon, M., Kim, D. J., Cho, H., & Yang, S. (2013). The smartphone addiction scale: development and validation of a short version for adolescents. PloS One, 8(12), e83558.