The Smart Clock

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Abstract: Some folks these days struggle to get out of bed in the morning. As a result, there were no meetings, tests, or even courses. This project's goal is to create an Android application that has the ability to make a user wake up. The Short Message Service (SMS) feature and pedometer are the methods utilized in this program. When the alarm clock on this program is set, the user must take their smartphone and walk ten steps to turn it off.
Following that, this alarm software sends a message to the users' parents' or friends' phones automatically to wake them up when the alarm clock went off.

Keywords: Informationization, Hard, Tasker Imperative, Investigation,

1. INTRODUCTION

For projects to be completed and submitted successfully in The suggested program combines sophisticated timekeeping the hectic and dynamic world of college project tools with clever reminder features, offering a complete management, efficient time management and prompt task answer to typical problems encountered by students when reminders are essential. In order to improve the efficiency working on project deadlines. The application makes use of caution app with four wake-up errand highlights: touching a button, taking a picture, shaking the gadget, and intuitive design and user-friendly interfaces to guarantee fathoming math issues. We collected 42.9 million in situ accessibility for all users.

Among the application's primary features are:

- Customizable Timers: The tool enables users to allocate time for various project assignments and tasks. Using machine learning, forecasts best times for unique user behavior, notifications without becoming overpowering
- Project Task Tracking: Users can create and track individual tasks related to their projects, enabling a systematic approach to project management.
- Integration with Calendar Systems: The application seamlessly integrates with popular calendar systems, providing users with a centralized platform for managing both academic and project related deadlines.
- Cross-Platform Accessibility: The application is designed to be accessible across multiple platforms, including web and mobile devices, ensuring flexibility and convenience for users.
- The research methodology involves the development of a prototype application, user testing, and feedback collection from a sample group of college students. Evaluation metrics include user satisfaction, task completion efficiency, and the impact on project submission timelines.

utilization information from 211,273 US clients for five months. Their alert app utilization behaviors were measured in two folds: eight alarm-set factors and five alarm-dismiss Our factual test comes about uncover the noteworthy contrasts in caution utilization behaviors depending on the wake-up errand, and the different relapse investigation comes about appear key utilization designs that influence the visit employments of difficult assignments, which are late alert hours, numerous rests, and moderately more utilize on ends of the week. Our think about comes about give hypothetical suggestions on behavior alter as well as viable suggestions for planning taskbased versatile alert.

2.2 Uncomfortable and Inconvenient Interaction

Ease of utilize has been a common guideline of intuitively framework plan in HCI [19]. This guideline is to extend completion efficiency, and the impact on project submission timelines.
The results demonstrate that the Clock and Reminder Application significantly improves students' ability to

manage their project timelines effectively, leading to enhanced productivity and timely project submissions. The findings of this research contribute to the ongoing discourse on leveraging technology for academic success and provide insights for further improvements in time management applications tailored for college environments.

2. LITERATURE SURVEY

2.1. Literature Survey on A Smart Clock and Reminder App

The most recent portable caution apps give wake-up errands (e.g., fathoming math issues) to reject the caution, and numerous clients readily acknowledge such an burden in return for effectively waking up on time. In any case, there have been no ponders that explore how the wake-up assignments are utilized and their impacts from a human– computer interaction point of view. This ponder points to extend our understanding of how clients lock in and utilize the taskbased alertapp by (1) analyzing the characteristics of diverse wake-up assignments and (2) extricating utilization components of difficult errands which include physical or cognitive assignment loads over a certain level. We created and conveyed Cautions, which may be a task-based versatile productivity and convenience so that users don't got to battle to attain superior comes about. Be that as it may, Gilmore [20] tended to the address almost the circumstance where rules and standards of interface plan are connected consistently to each data innovation. Benford et al. [21] contended in favor of unusual interaction plan, which they called awkward interaction. This instrument is critical to get it social encounters related to excitement, edification, and sociality. They examined and detailed different cases based on the awkward framework. For case, roller coasters and sports such as bungee bouncing can cause physical inconvenience such as tiredness and pressure. However, people are satisfied to acknowledge this stretch to feel the excite and amusement.

Rekimoto and Tsujita [22] proposed badly designed interaction, which needs the user's interest and exertion to accomplish a long-term advantage with the short-term burden. For case, they appeared a microwave that requires the user to perform a step-aerobics work out amid operation. Another case of the badly arranged framework was a fridge that contains a smile-awareness sensor so that the client should grin on the off chance that they need to open it [23]. These illustrations were based on the preface that snickering can offer assistance individuals to preserve long-term benefits of wellbeing. The Communication-Grill, for example, looks like an ordinary grill but that it cooks and keeps the meat warm as it were whereas individuals banter around it. This product energizes individuals to preserve a discussion with a positive impact.

Arousing from rest is for the most part a difficult but irreplaceable behavior. In specific, individuals frequently got to get up at a challenging time such as the early morning hours, which is why they utilize a conventional wake-up alert. Unnecessary to say, wake-up assignments force burden to clients, so clients got to increment their efforts to perform wakeup assignments. In this regard, using wake-up assignments can be caught on as an experimental case for the principles of badly arranged interaction.

In this consider, we inspected hard-taskers who like to utilize such inconvenience to reply the moment inquire about address. The hard-tasker gather is important and ought to be caught on since the wake-up errand, which causes errand loads over a certain level, is the foremost recognizing highlight of the taskbased alert app. Based on these understandings, it would be conceivable to suggest a appropriate wake-up errand for a specific client and to oversee the level of bother.

3. METHODOLOGY

3.1. Alarm Usage Data

To reply the inquire about questions, we analyzed Alarmy usage logs. Alarmy could be a task-based portable app we created in 2013 which right now gives four distinctive wake-up errands that include different levels of physical ormentalendeavors: (1)touchingabutto($normal\_taskno\ rmal\_task$), (2) taking picture ($picture\_taskpicture\_task$), (3) shaking the gadget ($shake\_taskshake\_task$), and (4) fathoming math issues ($math\_taskmath\_task$). The taking after areas present the Alarmy app and depict the dataset for the examination.

3.1.1 Reminder App

In this work, we analyzed $AlarmyAlarmy$, a wake-up taskbased portable alert app. We sent Alarmy to the open by means of Google Play and the App Store.

After many a long time, the app got to be the foremost downloaded alert clock app in 97 nations, and the number of its day by day dynamic clients (DAU) almost three million. Alarmy gives alerts with wake-up errands, and the client is constrained to perform a set errand to turn off an alert. This area explains how Alarmy clients set and reject cautions with wake-up assignments. The complete caution utilization prepare in Alarmy is as appeared in Figure1.

Figure 1. Setting and dismissing an alarm.

Alarmy comprises of four-tab menus:
(1) Alert, (2) History, (3) Today's Board, and (4) Settings. To begin with, the Alert
tab appears a list of alerts by showing the set time and the errand sort for each. The client can include a unused caution by touching the button at the foot of the screen. When touching one of the alerts within the list, the client can see and alter nitty gritty settings. Also, this tab empowers the client to set a clock called Speedy Alert. Besides, the History tab visualizes the user's past caution utilization data such as alert set time and the assignment sort over time. Thirdly, the Today's Board tab contains the day's climate, horoscope, and news. At last, the Settings tab empowers clients to set subtle elements for the Alarmy app utilize, such as changing app topic, dialect, and so on. To set the alert, the client must indicate nitty gritty data. To begin with, they must set when the alert goes off. Advance, the alerts can repeat once the client has chosen days of the week for repeat (e.g., weekday or end of the week). Following, the client can select ringtone volume, sort (e.g., sound or vibration), and sound (e.g., loud sound or music in the gadget). At last, the client must select one of five assignments for the alert:
(1) touching a button (ordinary strategy), (2) taking a picture of a specific put, (3) shaking the gadget, (4) tackling math issues of expansion and increase, and (5) filtering a QR code. These errands certainly exasperate clients by implementing cognitive and physical endeavors. Even so, our utilization logs appear that numerous clients still conduct such errands since they need to induce up at the proper time. In this paper, we allude to portable alert app errands for waking individuals up wake-up assignments. We labeled each wakeup errand as such: (1) touching a button ($normal\_tasknormal\_task$), (2) taking a picture ($picture\_taskpicture\_task$), (3) shaking the gadget ($shake\_taskshake\_task$), and (4) tackling math issues ($math\_taskmath\_task$). In this think about, we prohibited the checking a QR code strategy since the number of clients selecting the filtering a QR code strategy is exceptionally moo, and the method for this assignment is very comparative to that for the $picture\_taskpicture\_task$.
Touching a button is the ordinary strategy for alert expulsion, and its errand stack is moderately moo. Be that as it may, other wake-up assignments require generally tall physical or cognitive endeavors, in which clients must indicate the nitty gritty errands in development, called difficult assignments. For illustration, the client can indicate the trouble of the math issues or the number of shakes. For the errands of taking a picture and checking a QR code, the client must enlist an picture as a reference when setting the caution.
Once an alarm goes off, the client must choose whether to delay the caution (rest) or perform the wake-up assignment. In case the user chooses to rest, the alert briefly turns off, but its re-rings after the time the client already indicated. Something else, the client must perform a particular assignment to expel the alert.

3.1.2 Dataset Overview
Table 1 appears the portrayal of caution utilization factors and the insights that we measured for each person client. We collected Alarmy utilization information from the genuine clients who intentionally downloaded and introduced the app within the US from January to May 2018 (151 days). The collected utilization log incorporates anonymized client ID, the time when the alert was set, the time when the caution was set, the points of interest of the alarmset (e.g., wake-up errand sort, set to repeat), the time when the caution was expelled, and the number of naps employments. The assent required for information collection from these clients

was excluded by the endorsement from the Hanyang Regulation Survey Board (IRB No.: HYU-2019-06-010-1).

Amid the ponder period, a add up to of 581,712 clients cleared out 48,763,070 utilization logs. To prohibit trial clients we chosen 211,273 alarmy clients who had utilized the app for more than 30 days and their 42,909,263 app utilization logs. They were 38% of the overall clients, but their utilization logs cover 88% of the whole dataset. From the utilization logs, we measured caution utilization behaviors in two folds: alarm-set and alarm-dismiss. The alarm-set utilization contains eight factors in three subcategories: (1) set recurrence, (2) set time, and (3) set consistency. Alarm-dismiss utilization incorporates four factors from the two subcategories, (1) expel time and (2) rest. The normal number of the days that the clients set the alert was 74 days, and the users more often than not set 1.68 alerts per day. The cautions for the most part happened within the early morning hours (7.43 h) on weekdays (84%). Encourage, most of the cautions were set to repeat (77%).

3.2. Analysis Method

3.2.1 Comparing Alarm Usage among Wake-Up Task (RQ1)

Amid the ponder period, a add up to of 581,712 clients cleared out 48,763,070 utilization logs. To prohibit trial clients, we chosen 211,273 Alarmy clients who had utilized the app for more than 30 days and their 42,909,263 app utilization logs. They were 38% of the overall clients, but their utilization logs cover 88% of the whole dataset. From the utilization logs, we measured caution utilization behaviors in two folds:

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3.2.2 Modelling Hard-Tasker Usage Pattern (RQ2)

To compare the caution utilization among the four wake-up assignments, each user's utilization factors were amassed for each assignment. To check the presence of factually noteworthy contrasts in alert utilization among the wake-up assignment, we conducted a Kruskal–Wallis H test, a nonparametric hypothFor the moment investigate address, we received a factual modeling approach to investigate pertinent utilization designs of hard-taskers, who appear a generally tall extent of non-normal errands with cognitive and physical assignment loads (i.e., $math\_taskmath\_task$, $shake\_taskshake\_task$, and $picture\_taskpicture\_task$). Particularly, we conducted a different direct relapse examination, which builds a straight show of anticipating the extent of the difficult assignment employments ($prop\_hard\_taskprop\_hard\_task$) based on the alarm-set and alarm-dismiss utilization factors of each client. We utilized the over twelve autonomous utilization factors, counting eight alarm-set factors and four alarmdismiss factors from Table 1.

For this examination, all the factors were measured for each of the 211,273 clients. We found a few autonomous factors that were connected. For case, the two most elevated relationships were watched between $avg\_daily\_alarmavg\_daily\_alarm$ and $sd\_da\ ily\_alarmsd\_daily\_alarm$, and between $avg\_freq\_snoozeavg\_freq\_snooze$ and $sd\_fr\ eq\_snoozesd\_freq\_snooze$. We prohibited $avg\_daily\_alarmavg\_daily\_alarm$ and $sd\_f\ req\_snoozesd\_freq\_snooze$ to form all the sets of the free factors have a Pearson relationship esteem less than 0.7, and the fluctuation expansion figure (VIF) for each free variable was lower than the benchmark of 10 for multicollinearity [27]. The most elevated esteem was 1.757. In this manner, our relapse models were secure from the multicollinearity impact.

thesis test for a multigroup comparison. By considering the huge estimate of each bunch, we too calculated the impact sizes to assess the size of the contrasts [24]. We considered $\epsilon 2\epsilon 2$, the impact estimate for the Kruskal– Wallis H test. A earlier ponder [25] proposed that $\epsilon 2=0.01\epsilon 2=0.01$ be considered a little impact measure, 0.040.04 speaks to a direct impact estimate, 0.160.16 a moderately solid impact estimate, and 0.460.46 a solid impact

measure. In cases where the comparison test appears a direct or solid impact estimate beneath the earlier studies' rule [24], we conducted the Dunn test as a post-hoc test to distinguish the point by point relationship between the two errands and calculated Cohen's d as the impact measure, which speak to the size of the cruel contrast. Cohen [26] given rules of thumb for translating d, proposing that an d of |0.2||0.2| speaks to a little estimate, |0.5||0.5| speaks to a medium estimate, and |0.8||0.8| speaks to a expansive impact estimate. We utilized 0.001 as the level of noteworthiness for all the theory tests and conducted a Bonferroni rectification strategy for the post-hoc tests.

3.3 Proposed System

In the realm of college project management, effective time management and task reminders are crucial for successful project completion and submission. To address these needs, an intelligent Clock and Reminder Application tailored for college students has been proposed. This application integrates advanced timekeeping features with intelligent reminder functionalities to offer a comprehensive solution to common challenges faced by students during project timelines. With user-friendly interfaces and intuitive design, the application ensures accessibility for all users (Zhang et al., 2020; Humphrey et al., 2019). The importance of effective time management and task reminders in academic settings has been highlighted in various studies. Research indicates that reminders can improve performance by reducing cognitive load and task interferences, leading to better outcomes (Chen et al., 2016). Moreover, the use of reminders, such as text assignment reminders, has been shown to enhance student performance and facilitate communication between students and university administration (Humphrey et al., 2019). Additionally, the positive impact of coaching on student retention and completion rates underscores the effectiveness of timely interventions in academic settings (Bettinger & Baker, 2014).

Furthermore, literature explores the integration of intelligent technologies in educational environments. Studies demonstrate that intelligent informationization in college teaching can create an interactive learning environment beneficial for both teachers and students (Kong, 2018). Additionally, leveraging artificial intelligence-based approaches to enhance student engagement in online environments reflects ongoing efforts to utilize technology for educational improvement (Ayouni et al., 2021). In conclusion, the development of an intelligent Clock and Reminder Application tailored for college students represents a proactive approach to addressing project management challenges in academic settings. By incorporating advanced timekeeping features and intelligent reminder functionalities, this application has the potential to improve project submission efficiency and contribute to students' overall academic success.

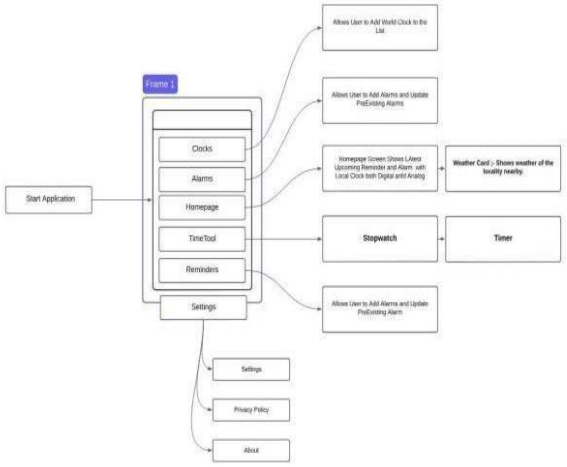

Figure 3: Flow Chart of Proposed system

4. RESULT AND DISCUSSION

4.1 Different Alarm App Usage among Wake-Up Task (RQ1)

Table 2 and Table 3 appear the task-wise comparison comes about by the Kruskal–Wallis H test, and Figure 2 and Figure 3 speak to the greatness of the cruel contrasts among the wake up assignment

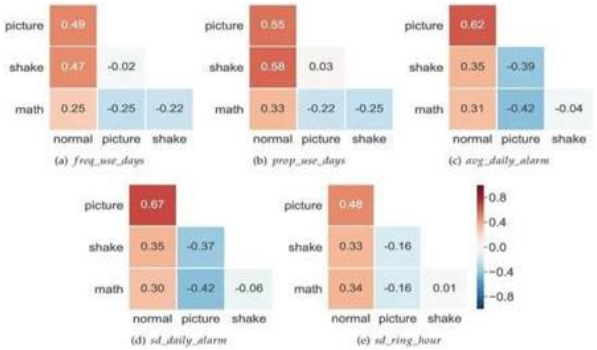

Figure 4: The magnitude of task-wise mean differences on alarm set-usage

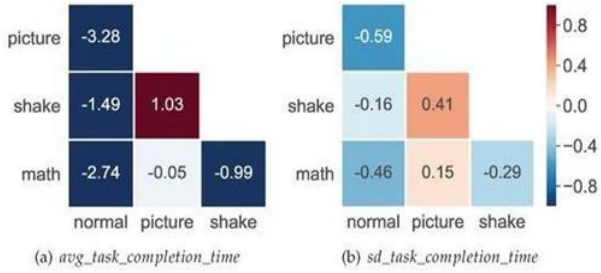

Figure 5: The magnitude of task-wise mean differences on alarm dismiss-usage

4.1.1 Alarm Set Usage

Set Frequency. There are three factors within the set recurrence, $freq\_use\_daysfreq\_use\_days$, $prop\_use\_d\ aysprop\_use\_days$, and $avg\_daily\_alarmavg\_daily\_alarm$. To begin with, the number of days of setting each wake-up errand ($freq\_use\_daysfreq\_use\_days$) was compared by means of the Kruskal–Wallis H test, The comes about appear critical and direct contrasts among the wake-up assignments [H (3) =10,884.67H(3)=10,884.67, p

Figure 6: Setting of an Alarm

Set Time. The set time category incorporates $avg\_ring\_houravg\_ring\_hour$ and $prop\_wee\ kdayprop\_weekday$. To begin with, the Kruskal–Wallis H test on the set-alarm hours ($avg\_ring\_houravg\_ring\_hour$) uncovers a noteworthy contrast among the assignments, but its impact measure was little, demonstrating that most of the cautions were concentrated within the morning hours [H (3) =2558.71H (3) =2558.71, p

Figure 7: Set Time

5. CONCLUSION

This paper pointed to make strides task-based versatile caution app plan by understanding the wake-up assignment employments within the Alarmy app. The comes about of this think about uncover the predominant utilize of the $normal\_tasknormal\_task$, the prior and standard utilize of the $picture\_taskpicture\_task$, and the longest assignment completion time of the $math\_taskmath\_task$. Advance, our relapse investigation comes about appeared that hardtaskers experienced challenging circumstances such as arousing at an prior time moderately less and for the most part appeared unpredictable behaviors such as a tall number of rests employments and an conflicting number of alerts in a day, which conceivably short-circuit habit-formation.

In future work, it'll be curiously to plan wake-up errands for portable crowdsourcing [28,29]. Our think about comes about appeared the potential of wake-up assignments for crowdsourcing. For illustration, we

found that there are numerous clients who eagerly and reliably conduct cognitive or physical errands in arrange to urge out of bed. In addition, errand completion tended to be longer (50–70 s) than that in earlier work, such as utilizing smartphone open minutes (1–3 s) [30,31].

Besides, we accept that our consider can be a pioneer within the HCI field of behavior alter related to status right after arousing and energize branching out in advance ponders. This think about presents experimental cases beneath the standards of badly designed interaction. HCI has mostly focused on expanding adequacy in assignment execution, but like taskbased alerts, clients still choose to acknowledge burden in a few spaces. We accept that understanding such aiming badly arranged encounters will extend the HCI inquire about zone.

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