Product Backlog

Alarm2

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# Problem Statement

The modern alarm clock is usually the built in alarm app of a person’s smartphone. However, there are limitations to this that can be improved. Our project tackles the issue by focusing on smarter ways to wake a person up. These include setting alarms based on specific locations for travelers, notifying people if your alarm is not manually turned off, set alarms for others in groups, and involve lights and speakers to wake you up. So, it is a smart alarm!

# Background Information

Problem

While there are a plethora of alarm clock options available, most are simply reskinned versions of different audio effects: they are not as effective to “wake me up” as much as we can hope for in this digital era of IoT and HCI(Human computer interaction). They do not consider wider features of an alarm clock and instead focus on perfecting a single aspect of an alarm instead of entertaining the idea of alternative alarms.

Domain

The domain for our app is Lifestyle.

Audience

Our application is universal. It is intended to be used by anybody who needs the features of a digital system to alert them. This is not restricted to special age groups. Even so, there are special kind of people that would find some features meaningful. A family would utilize the group based feature, in which parents can do a host of features such as set alarms and voice messages for the children. Any group or team can similarly utilize this feature too.

Similar Platforms

There are certainly other creative alarm apps available, such as Alarmy, including solving puzzles to deactivate the alarm, taking the phone to a specific location, etc., we were unable to find any alarm app based on location rather than time.

*Alarmy*, an Android app, makes the user do challenges and take photos to uniquely wake up the person.

*Sleep Cycle* is an alarm app that “analyzes your sleep and wakes you in the lightest sleep phase”

Limitations

The issue with traditional alarms is that they are unreliable if the travel time is uncertain. We want to provide a product for frequent long distance commuters that cannot rely on a definite time schedule. Additionally, other unique features including group alarms, phoning a friend, and using an alarm based on light instead of sound are all designed to help nontraditional sleepers that are looking for something more suited to their needs.

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# Requirements

**Functional Requirements:**

Call a friend (Approx. time to complete: 60 hours)

1. As a user, I would like to be able to set a contact who would be called to wake me up so that in case I do not wake up or sleep past my alarm I will have a safety net
2. As a user, I would like to be able to record my own voice message so that others can be notified with a call if I fail to manually stop my alarm.
3. As a user, I would like to be able to set custom text messages so that others can get notified with this message if I fail to manually stop my alarm.
4. As a user, I would like to set a contact who will be notified with a message so that they can confirm whether or not I woke up
5. As a user, I would like to have multiple contacts from which I can choose which ones to call or text
6. As a user, I want to set default text and voice messages for new alarms so that I do not have to create a custom message/recorded message for every new alarm
7. If time allows: As a user, I want to have templates for text and voice messages for any alarm, old or new, so that I can quickly choose these to notify people
8. If time allows: As a user, I would like to be able to have a call log so that I can conveniently see the people I have been calling and the people who have been calling me
9. If time allows: as a user, I would like to be able to import contacts from my phone so that I can more easily deliver messages or wake up calls to other users of the app

Group feature (Approx. time to complete: 50 hours)

1. As a user, I would like to have multiple groups so that I can manage different sets of people easier rather than having to manually assign alarms to different subsets of a single group
2. As a parent, I would like to form a group so that I can easily manage alarms for the family
3. As a parent, I would like to have an admin account, so that I can manage my child’s account
4. As a parent, I would like to leave audio notes for my child so that I can be assured they receive my message when they wake up
5. As a parent , I would like to set an alarm for my child
6. As a parent, I would like to set to receive a notification indicating the success of my child stopping the alarm.
7. As a group admin, I would like to add and delete members so that I can easily manage membership
8. As a group admin, I would like to create alarms/notifications for the entire group so that one person can be in charge of deciding the wake up time
9. As a group admin, I would like to see how many people successfully woke up with the group alarm
10. As a group admin, I want to be notified if somebody cancels the alarm so that I can easily track who has woken up to the alarm
11. As a group admin, I would like to decide on whether users can see other user’s success, so that I can allow them to see others’ updates
12. If time allows: As a user, I would like to be able to mute updates for specific groups so that in case I am part of that group but temporarily unavailable, I am not concerned with the new updates in that group.

Location feature: (Approx. time to complete: 80 hours)

1. As a traveller on some moving vehicle, I would like to be woken by choosing a location, upon reaching which, I am woken up, so that I do not need to worry about the exact time I will reach that location
2. As a user, I would like to be able to set a radius around the location for which the alarm is activated, so that I can allow error in location of the GPS and also allow myself time to prepare
3. As a user, I would like to have a backup time based alarm on the event, so that I have a backup if the satellites or the internet is unavailable.
4. As a user, I would like to be able to set a custom notification sound for location based alarm
5. If time allows: As a user, I would like to be able to see my history of locations so that I can easily select frequent commutes instead of manually resetting the alarm every time
6. If time allows: As a user, I would like to be able to set repeat alarms for frequent commutes so that I do not have to manually reset the same alarm every time

Analytics (Approx. time to complete: 70 hours)

1. As a user, I would like to see my “success rate” of my time alarms, for each month over the past year, so that I can gain relevant and important information about my success rate over the passage of time.
2. As a user, I would like to see “the success rate” of a specific feature, for each month over the past year, so that I can gain understanding of the effectiveness of that feature.
3. If time permits: As a user, I would like to see a visual chart for the analytics on success rates, so that there is better visualization for me to understand the data.
4. If time permits: As a user, I would like to receive suggestions for alarms based on my past usage, so that it becomes easier for me as the app would make the decisions for me.

LED lights: (Approx. time to complete: 70 hours)

1. If time allows: As a user, I would like to be able to woken up to LED light set in the room at a specific time so that I can be woken by light rather than sound
2. If time allows: As a developer, I would like to control the LEDs using a microcontroller so that they can be controlled remotely by remotely controlling the microcontroller
3. If time allows: As a developer, I would like to connect my app to an microcontroller so that it can control the LEDs
4. If time allows: As a user, I would like to have a physical switch next to me which can act as a toggle switch for a specific or multiple alarms.
5. If time allows: As a user, I would like to have a LED light attached to the switch which is used turn off an alarm, so that I can easily and without confusion, say whether the corresponding alarms are active or not.

General features: (Approx. time to complete: 30 hours)

1. As a user, I would like to set an alarm based on time, so that I can be woken like how traditional alarms wake us up
2. As a user, I would like to set ringtones for normal alarms, so that I can choose for the same
3. As a user, I would like to be able to easily view all my alarms so that I can conveniently check and update them
4. As a user, I would like to set an unlimited amount of alarms
5. If time allows: As a user, I would like be able to connect to Spotify so I can use a playlist as an alarm.
6. As a user, I would like to select multiple features simultaneously
7. If time allows: as a user, I would like to I would like to have the option to use the same alarm more than once so that I do not have to reset the same alarm every time
8. If time allows: as a user, I would like to set an alarm that resets itself over a time period. (i.e. the same alarm automatically gets set every Tuesday at 6pm.) so that I do not have to reset the same alarm every time

**Non Functional Requirements:**

Architecture (Approx. time to complete: 60 hours)

We plan on having a client server architecture, with a fat client. The server is required because we need communications between different phones with the app installed and further there is a group feature present.

Doing the bulk of the work on the client will allow the user’s personal settings to be set immediately, without needing to sync up with the server.

Text calls with pre-recorded voice message will all be stored in and delivered from the user’s phone to minimize storage and workload put on the server.

The data for the text and pre-recorded voice messages would be stored on the individual’s phone, just like WhatsApp and other apps, so that the user pays for user data, and thus there is more space on the server.

Performance (Approx. time to complete: 40 hours)

Keeping group settings synced among users can require a lot of requests to the database, which can result in slower UI and a drain on the battery. Rather than constantly checking, the app will automatically update on startup and refresh, and check for changes every minute while the app is open. While the app is stopped, the background client will do checks every 30 minutes if connected to wifi, and every hour if not.

Scalability (Approx. time to complete: 30 hours)

For our back end we will be utilizing a cloud based server. We currently plan to allow 100 MB of user data per user. By using a cloud based server, we can easily expand our total storage and increase the amount of requests that can be made to the server per month, which will allow us to handle a drastic increase in users.

Usability (Approx. time to complete: 20 hours)

The user interface and the user experience of the app should be such that it is intuitive and easily used by all the possible users. After all this is an alarm app which shouldn’t be one where a lot of time is spent on, and hence it should be user friendly.

Security (Approx. time to complete: 40 hours)

Using a cloud based server will greatly reduce the likelihood of security breaches. Time permitting, we plan on encrypting the data to be sent to and from the client.