

CS3240 Design Exercise Milestone 1

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1 Introduction

1.1 Choice of Exercise

I chose to work on **Exercise 3**, designing an **interactive calendar** for a travelling salesman.

1.2 Target User

The target user as mentioned in the problem summary would be of **travelling salesmen** who constantly need to keep track of their meeting in **different cities**.

1.3 User Needs

The user needs can be summarized into 3 components. As a result, ideas need to be generated to solve these 3 main needs, which I would constantly **touch on** in this report.

1.3.1 Ability to change time zones easily during travel

As a travelling salesmen, I would want to be able to automatically change my time zone when I reach a new location.

1.3.2 Being able to choose meeting times easily

As a travelling salesmen, I would want to be able to schedule meetings which do not conflict with other meetings and lead me to a convenient journey for the day.

1.3.3 Ability to be reminded about upcoming meetings

As a travelling salesmen, I would need reminders to allow me to be on time for my meetings.

Note:

These issues will be further elaborated on in the **User Journey Map**.

2 Creating the User Journey Map

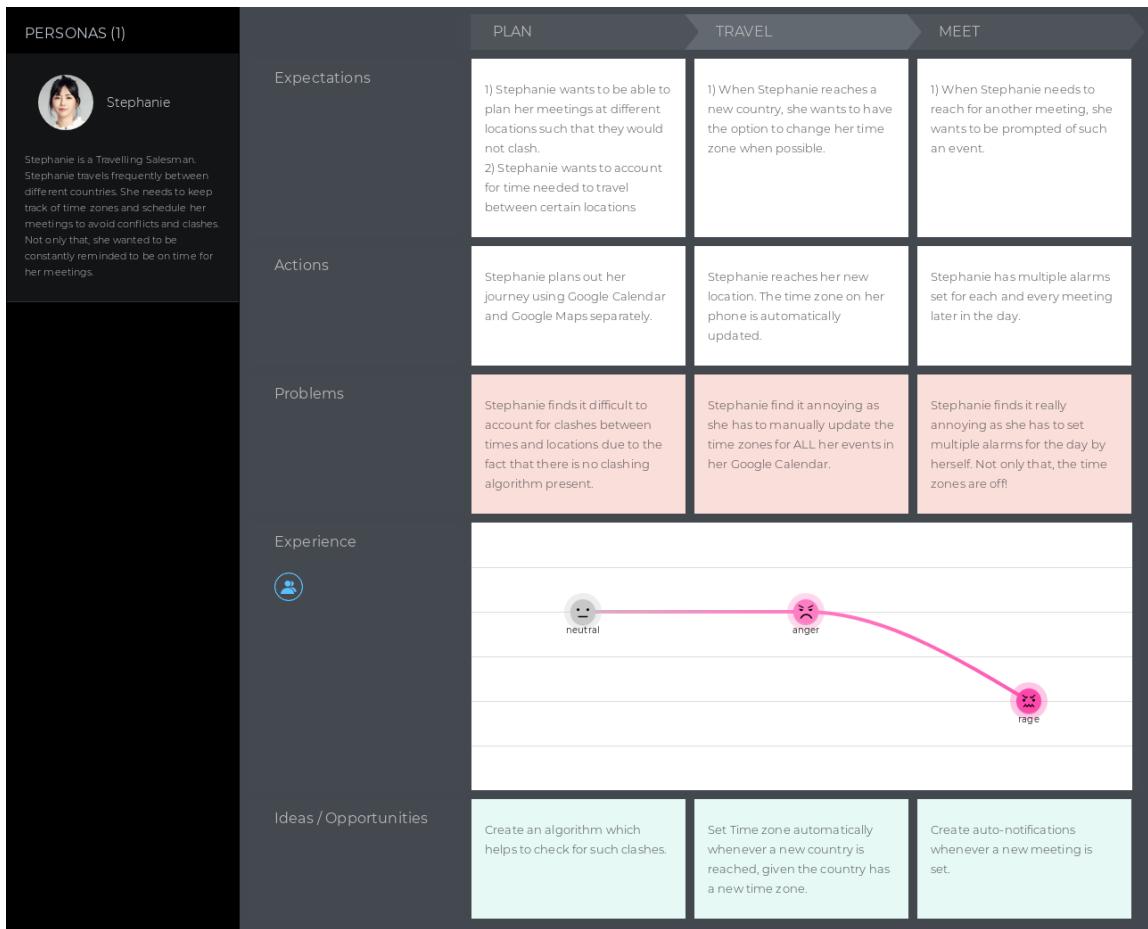


Figure 1: User Journey Map of Stephanie

From this, I will proceed to generate some ideas which will aim to tackle the issues faced by Stephanie.

3 Generated Ideas

3.1 Travel Application using Google Calendar

Given that Google is already **existing technology** which helps users to plan meetings and events, it would be great just simply to add onto it as it solves **Issue 1.3.2** and **Issue 1.3.3** as there is already in-built scheduling and simply push notifications to remind the salesman about the upcoming events.

3.2 Auto-plan Schedule using algorithms

This application serves to use simple existing **graph algorithms** to provide suggested timings for salesmen to choose from and from there, they do not need to **crack their heads** to decide on the best way possible to schedule their events. This would definitely solve **Issue 1.3.2**.

3.3 Evaluation of Ideas

Based on the ideas suggested, there are few key points which I feel that are missing from my suggested ideas.

1. There is no **indication of aid** to help the salesmen **change the time zone** to be better able to match timings of events, flights and meetings. In fact, **no attempt** was made to solve **Issue 1.3.1**.
2. **Idea 3.1** only talks about **manual scheduling** whereas **Idea 3.2** only talks about **automated scheduling via suggestions**. The idea of mixing these two ideas together **has not been considered** and as a result, restricts creativity and usefulness of the final designed product.

As a matter of fact, it would be more beneficial to generate **sub-ideas** given the rough idea of the 2 main ideas generated previously in **Section 3**. As a result, by generating and **combining sub-ideas**, I aim to create a more well-rounded product.

4 Generated Sub-Ideas

For this section, I would be listing some of the ideas that I have generated and after which, evaluate them based on the criterion of **feasibility and convenience**

4.1 List of Ideas

4.1.1 Automatic Updating of Time zone upon Cellular Network Connection

This idea tackles **Issue 1.3.1**. Most smartphones today come up with **native functionality** of **changing one's current time zone** once connected to a cellular network. By extending upon this **native functionality**, we can allow the application to automatically update the time zone whenever the travelling salesmen **arrives at a new location**.

4.1.2 Manual Updating of Time zone

This idea tackles **Issue 1.3.1**. By providing a list of time zones, the travelling salesmen can select from a **simple dropdown** to change his or her time zone based on the location he or she is in

4.1.3 Suggestion of Meeting times based on previous and next meetings

This idea tackles **Issue 1.3.2**. By suggesting a list of start and end timings based on the following criterion:

1. Date of Meeting
2. Duration of Meeting
3. Reducing the distance travelled from an older meeting to this meeting to a later meeting
4. Reducing waiting time from an older meeting to this meeting to a later meeting

The travelling salesmen would not need to **crack his or her head** in order to plan out his or her meeting flow for the day and adopt any of the suggested options.

4.1.4 Alert when meeting times conflict

This idea tackles **Issue 1.3.2**. Upon assigning a meeting time when creating a new meeting, a **simple algorithm** will be used to check the following:

1. Timing clashes with any meetings of the same day
2. Feasibility of travelling between older and later meetings.

For example, if a previous meeting ends half an hour before the current meeting, and it takes 2 hours to travel from the previous to the current meeting, **an alert should appear**, warning the user of such a clash.

4.1.5 Push Notifications to remind about next meeting

This idea tackles **Issue 1.3.3**. Simple push notifications **in-app and outside of the app** should be done to remind the travelling salesmen of future meetings.

4.2 Evaluation of Sub-Ideas

4.2.1 Issue 1.3.1 Ideas

Idea 4.1.1 complements with **Idea 4.1.2**. This is because a travelling salesman **might not have immediate cellular network connection** upon arriving at a new place. As a result, it would be **great** to have an option to manually assign the new time zone if necessary.

4.2.2 Issue 1.3.2 Ideas

Idea 4.1.3 complements with **Idea 4.1.4**.

Idea 4.1.3 limits the user to selecting only **the given suggested timings** and as a result, reduces freedom of the user to choose his or her meeting timings, which can be solved with **Idea 4.1.4**.

On the other hand, **Idea 4.1.4** gives too much freedom and **no sense of direction** with regards suggested timings, which can be solved with **Idea 4.1.3**.

4.2.3 Issue 1.3.3 Ideas

Idea 4.1.5 tackles the issue needed to solve.

4.2.4 Ideas that are missing and can be included

After taking a cool at the sub-ideas that I have generated, I still strongly felt that **we can do better** in terms of idea and issue tackling.

1. Salesmen should be able to set **the time of reminder** so that they can have **enough time to prepare** for the next event, instead of merely following a pre-set reminder time, which might be too late.
2. Some sort of navigation is **good-to-have** for salesman to travel from one location to another in order to reach the next **event, flight or meeting on time**.

As a result, by introducing new ideas, I have actually found out potential pain points which I might have missed out in **1.3**.

4.3 Conclusion

As a result, the ideas mentioned in **Section 4.1** will be able to tackle the issues mentioned in **Section 1.3** in a more well-rounded manner, as compared to limiting myself to sole ideas with one or two key main features only.

5 Sketches

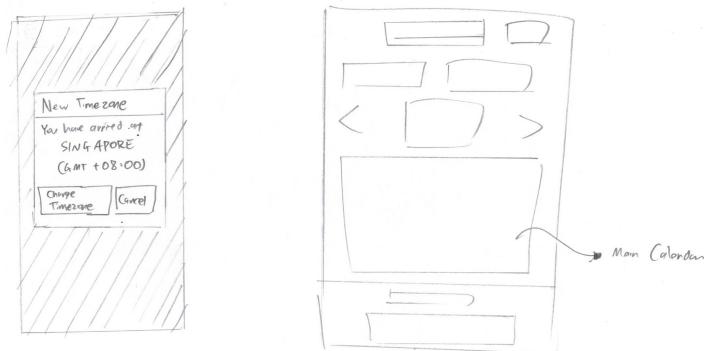


Figure 2: Formatting of Home Page

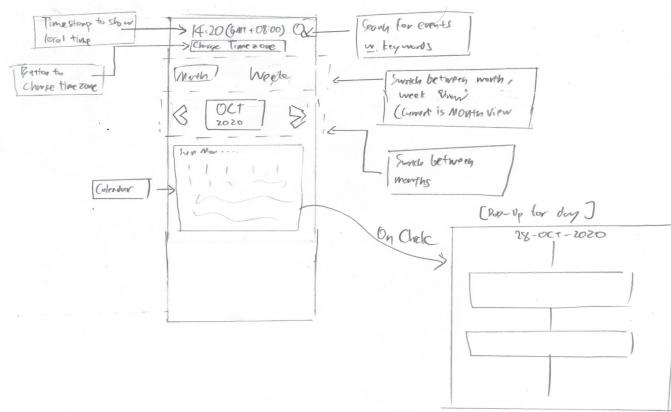


Figure 3: Ideation of Home Page

Originally, my idea was to generate **dynamic content** through **constant pop-ups**. For example, when the salesman clicks on a day of the calendar, a pop-up with the summary of that day should appear.

However, the interactions as a result **might become too messy** as when a salesman changes the day of the calendar, he or she will **unexpectedly** receive a pop-up of the day's summary, which might not be the **intended interaction**.

As a result, it was important to follow the rule of **one functionality of one interactable only**.

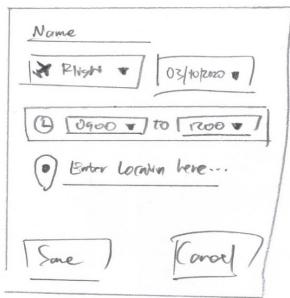


Figure 4: Ideation of Home Page

Originally, I felt that it was okay to create my own **dropdowns** to select the **start and end time**. However, i did not **consider the possibility of smartphone time pickers** using scrolls, which already existed as part of smartphone functionality.



Figure 5: Illustration of Time Picker on a Smart Phone

In my honest opinion, this was a much better way of **communicating the time selected** for both the start and end time. It is easier to select the time by **scrolling** as only one action is needed, compared to a dropdown, where massive scrolling is needed to scroll **1440 entries for each possible time from 0000 to 2359!**

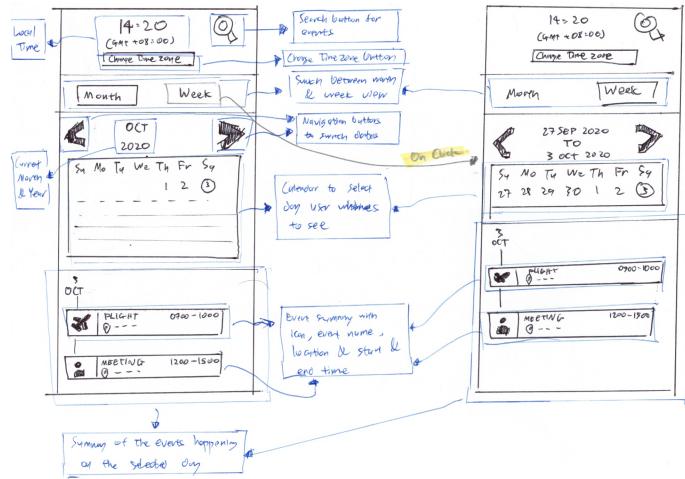


Figure 6: Home Page Calendar Navigation

When the travelling salesman enters the application, he or she will be able to change the **calendar view** to show the **monthly or weekly calendar**. Following which, when he or she selects a date, the summary of events for that particular day will be shown on the **bottom of the screen**

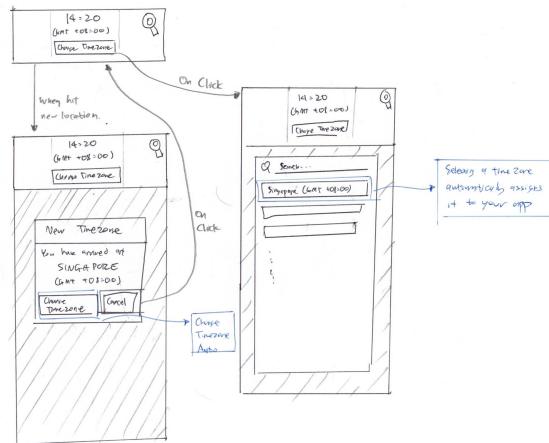


Figure 7: Time zone Change Navigation

With regards to time zone changing, either:

1. When the salesman reaches a new location, a popup will appear asking if he or she **wants to automatically set the time zone** based on the new location
2. When the salesman needs to change his or her time zone, he or she can **manually** click on the **Change Time zone button** on the top to select a time zone.

Both of these actions will change the timings of **all events** in the application.

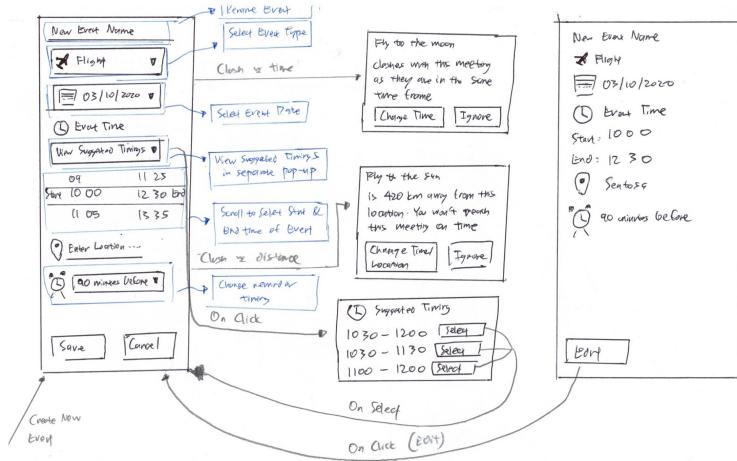


Figure 8: Event Creation / Edition Navigation

A travelling salesman will need to enter the **Event Type**, **Date**, **Start & End Time**, **Location** and **Reminder Alarm Time** to create a new event.

In the event of clash due to **locations or time frame**, an alert will appear, suggesting the salesman to edit the location and / or timing whenever deemed necessary.

If the salesman wants an easier route, he or she can simply take any of the suggested timings from the application. The suggested timings are calculated using **API from Google Maps** which gives us the time and distance from one location to another.

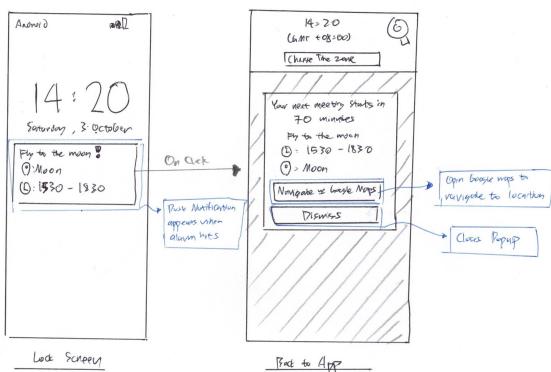


Figure 9: Push Notification Navigation

When the alarm hits, it will send a **push notification** of the summary of the details of the upcoming event. On Click, the salesman will be redirected to the application where a pop-up will appear. He or she can choose to **navigate**, which will open the Google Maps Application, or **Dismiss** the pop-up.

However and most importantly, the button to add a new event **was missing!** In fact, there is no indication for the salesman to create a new event. It **needs to** be covered in the final wireframes.

6 Main User Flow via Wireframes

The Main user flow will be as follows:

1. Login to the application
2. Create a new event (Flight or Meeting)
 - (a) If there exists a clash, go back to Step 2.
 - (b) Else, go to Step 3.
3. Click on Save and Create the event
4. New event created successfully, summary of the day updated.
5. When the alaram hits, a pop-up navigation will appear.
 - (a) if the salesman wants to find directions to the location, choose to navigate.
 - (b) Else, just dismiss the notification.
6. Repeat Steps 1 - 5 to create another event. (Flight or Meeting)

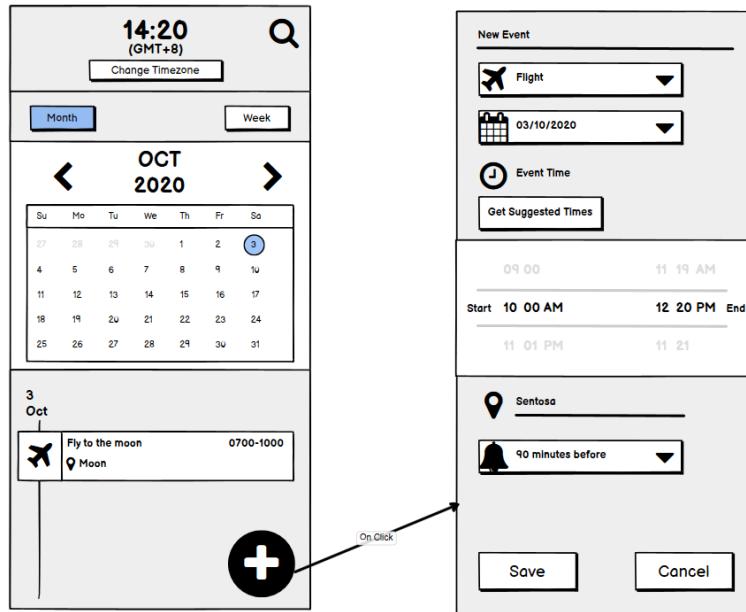


Figure 10: Home Page to New Post

First, When the salesman **logs in**, he or she will be redirected to the home page. When the user wants to create a new event, he will click on the bottom right-hand button.

Following which, as mentioned earlier, he or she will need to enter the **Event Type, Date, Start & End Time, Location** and **Reminder Alarm Time** to create a new event.

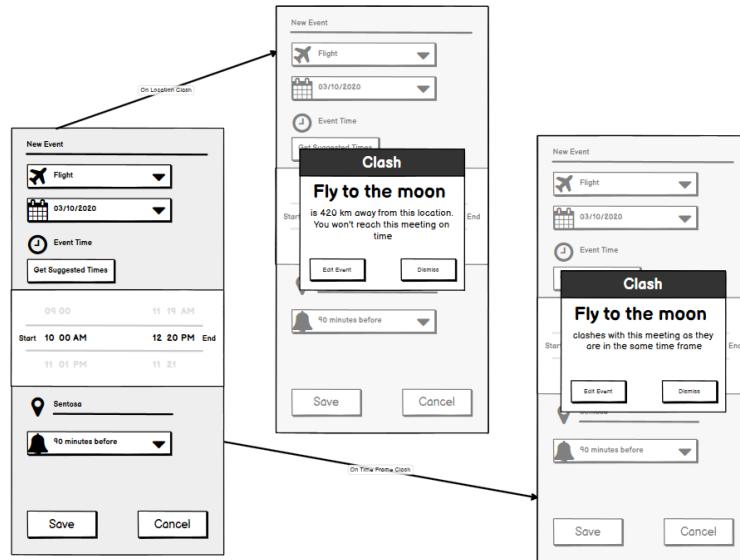


Figure 11: New Post to Failure (Timing or Location Clash)

In the event that there is a clash whether due to timings or feasibility due to travel time, a **warning will appear**.

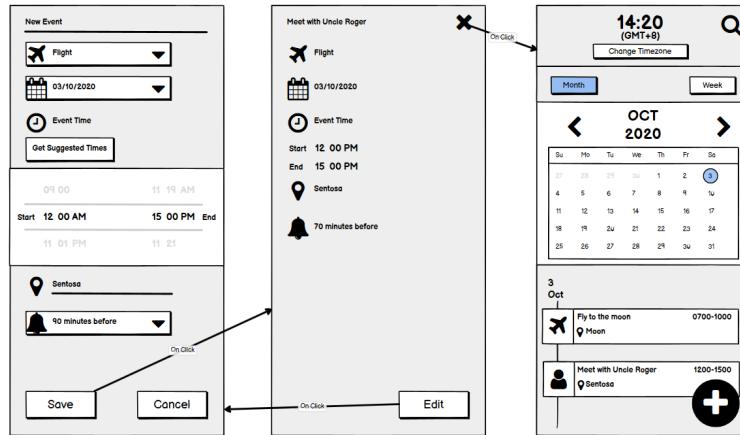


Figure 12: New Post to Success to Updated Home Page

If there is no clash, on the salesman clicks the **Save Button**, it would redirect the salesman to the event page. If the salesman wishes to make further edits, he or she can press the **Edit Button**. Else, by clicking the **Close Button** on the top right corner, he or she will be redirected back **to the home page** with the updated summary of the day **at the bottom**.

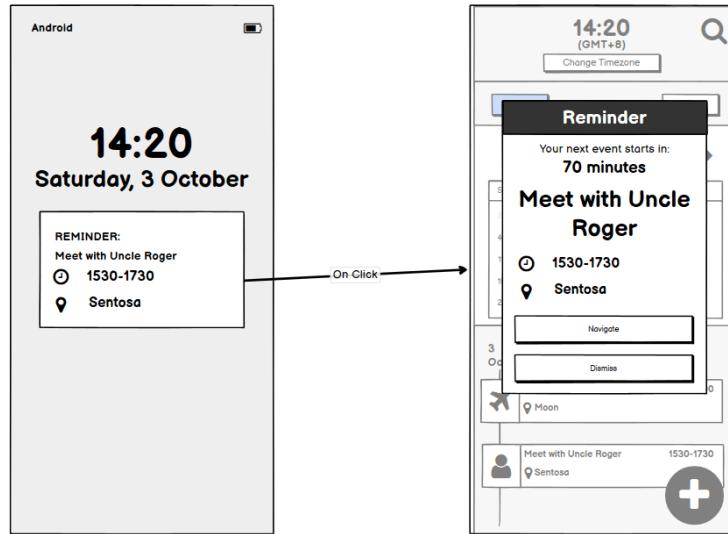


Figure 13: Phone Notification to Application Pop-Up

Assuming the user **exits the application**, the salesman will receive a **push notification** outside the application. When the salesman clicks on it, he or she will be **redirected back to the application**. At the home page, the **pop-up notification** with the event details will appear.

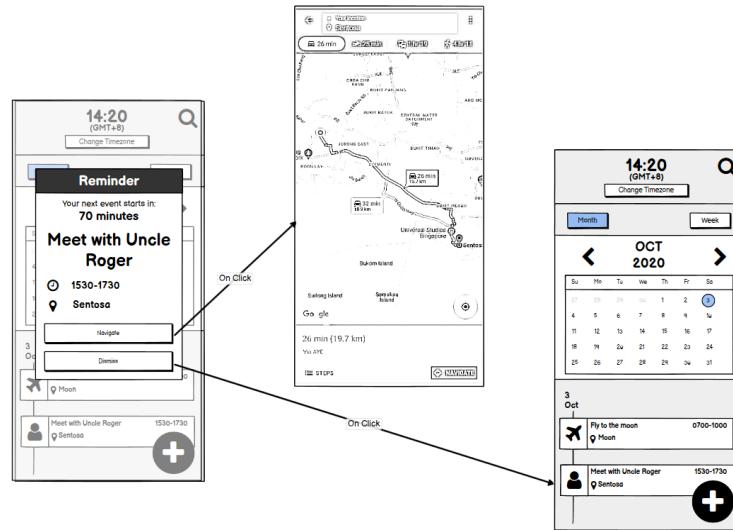


Figure 14: Phone Notification to Application Pop-Up

The salesman can choose to do one of the following:

1. Click on **Navigate**, and have Google Maps navigate the salesman to his or her direction
2. Click on **Dismiss** to simply dismiss the notification.

7 Other Interactions

7.1 Changing Time zone

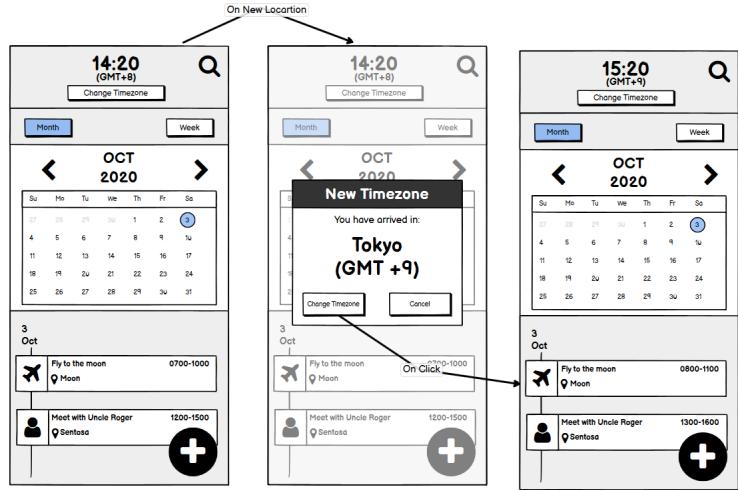


Figure 15: User Flow for Changing Time zone Automatically

When a salesman enters a new country, he or she will receive a prompt in-app to **change the time zone based on the new country's time zone**. If **Change Time zone** is clicked, the time zone will be changed automatically.

7.2 Changing Time zone Manually

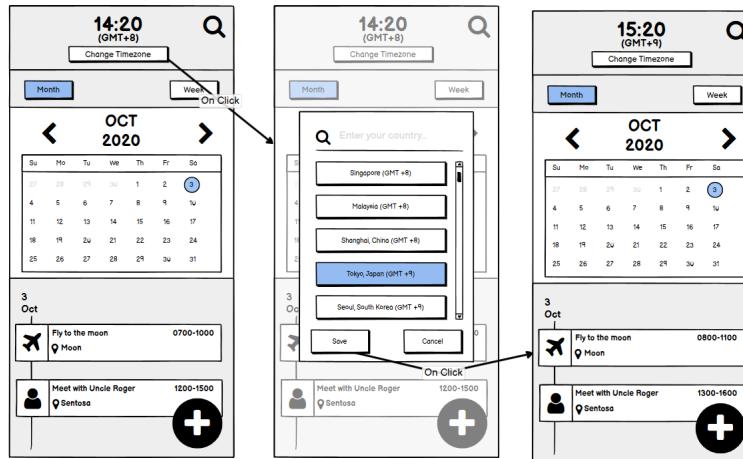


Figure 16: User Flow for Changing Time zone Manually

Else, a salesman can choose to change it manually by clicking the **Change Time zone** button on the top. After selecting a time zone and clicking save, the time zone will be automatically updated.

7.3 Suggesting Start and End Times

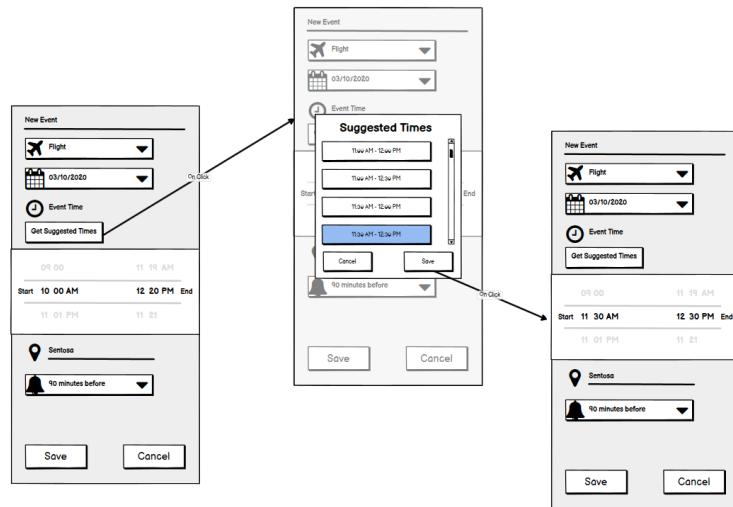


Figure 17: User Flow for Choose Suggested Times

When creating / editing an event, by clicking on **Get Suggested Times**, the travelling salesman can select a suggested time and click **Save**. As a result, the Start and End time will be **updated automatically** based on the selected suggested time.