

Formative Research Report

Team: GEL (Goto Emergency Land)

Team Members

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● Introduction

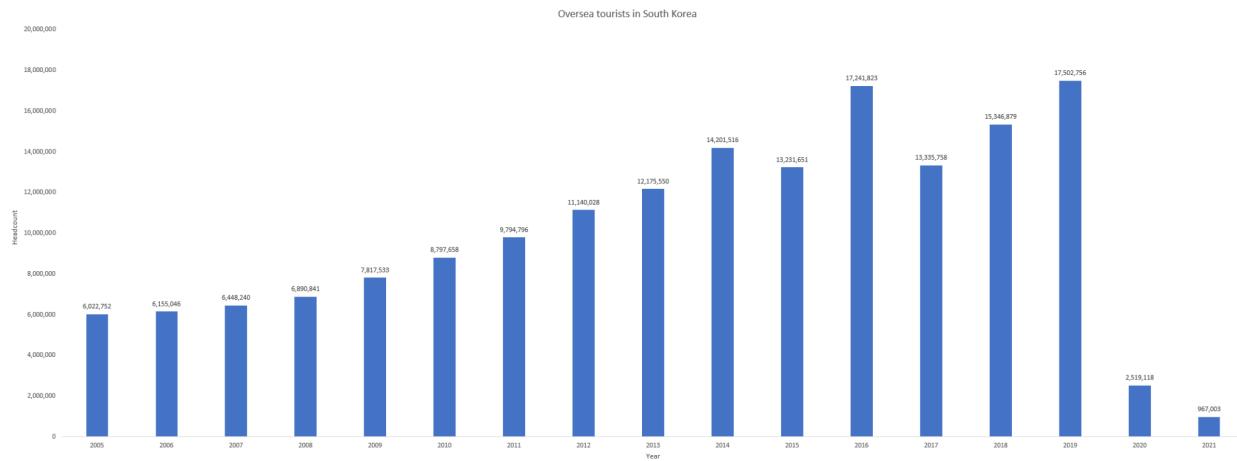


Figure 1. Oversea tourists in South Korea (Tourism Knowledge & Information System)

The above chart(Figure 1) represents the number of overseas personnel visiting Korea from 2010 to 2021. The number of overseas tourists and visitors continued to increase before the COVID-19 incident. In line with the demand caused by the increase in overseas tourists and overseas visitors, the government and related institutions carry out IT service projects for foreigners. The categories of released services were broad and diverse, such as travel, Korean language learning, administrative processing, banking, and even residents' work. And the application for emergencies has also been followed.

EmergencyReadyApp is a service provided by the Ministry of the Interior and Safety. The service provides information for emergencies, such as shelter information for a safe evacuation, location, and information of medical centers, police stations, fire stations, and safety guides on doing CPR, first aid, etc. The application was developed to help foreigners respond to emergency situations in Korea and it is mostly the only service in the market.

However, the application users are highly unsatisfied by immature management, unfriendly interfaces, and low usability. Despite the importance of the application, it does not have any choice for users except to collect scattered information around the internet. Furthermore, since 2014, when the application was launched, it has had a low review score and low download numbers. Specifically, we could summarize the problem into three main parts:

1. The user interface is far from intuitive; it is hard to recognize how to use the app immediately.
2. The low useability of numerous functions seems useless in real-life.
3. The mistranslation of disaster alarms could cause more significant problems to the user.

Thus, in our project, we aim to build a revision design of the *EmergencyReadyApp* by solving three problems we summarized. More intuitive user interface, better functionality, and precise translation.

● Background

Since the word “**emergency**” includes various circumstances, a diverse form of service is inevitable. And we could categorize the format of the, whether the application is focusing on one or two emergencies or handling overall situations. Thus, we could consider the difference between two formats of existing emergency apps and combine positive aspects to one.

Firstly, the applications focused on specific emergencies. ***Travel Safe - World Emergency Phone Numbers*** is an application for anyone who travels a lot to different countries and has not memorized all the different emergency numbers. It has an intuitive user interface, and the functions show straightforward usability. Only focused on providing emergency call numbers which could be limited to getting precise help for various emergencies.

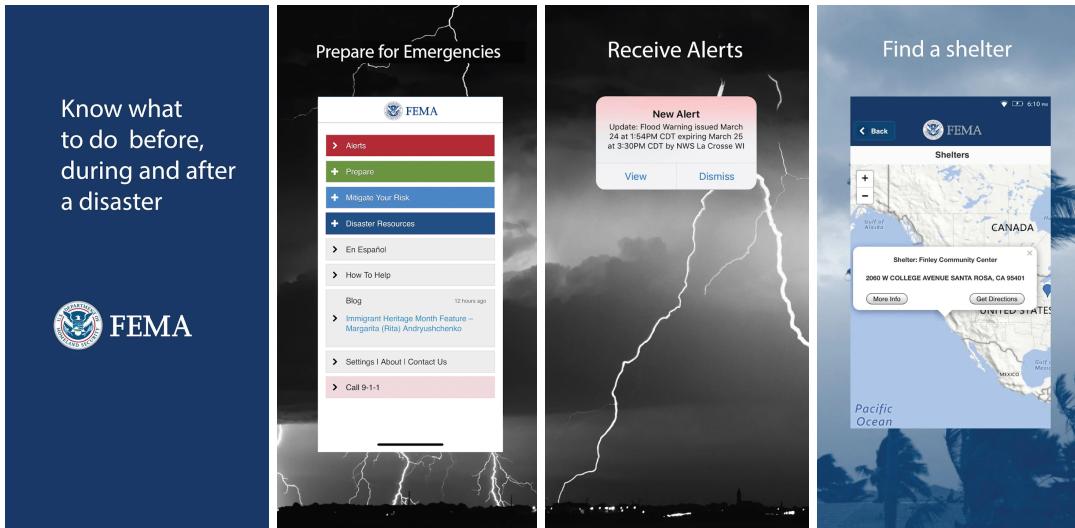


Figure 2. FEMA

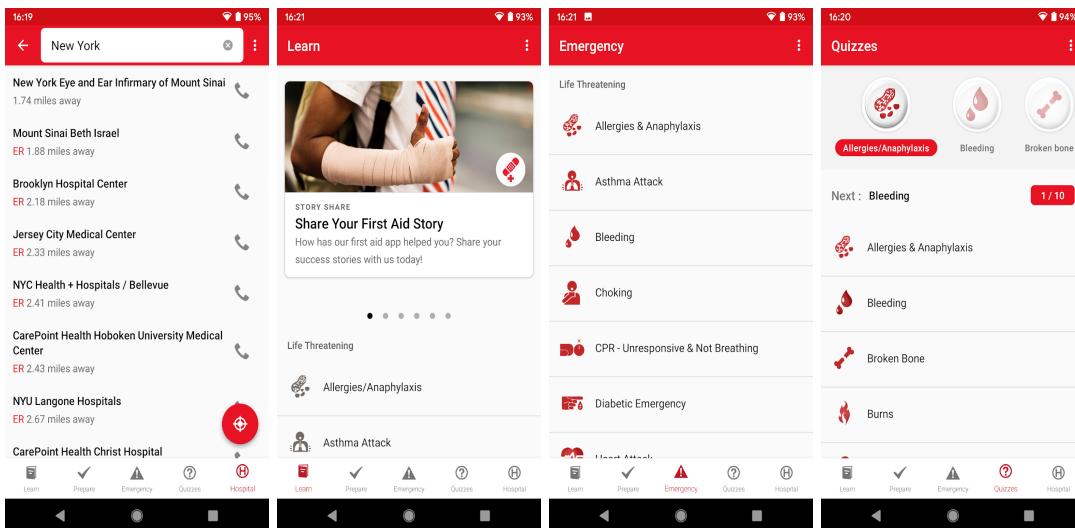


Figure 3. First Aid: American Red Cross

FEMA(Figure 2) is one of the applications providing real-time notifications about disasters, severe weather, which focuses on disaster emergencies. The Federal Emergency Management Agency releases it. Similar to **SC Emergency Manager**. It is released from the South Carolina Emergency Management Division. It mainly focused on functional quality related to hurricanes. The health-related applications such as **First Aid: American Red Cross** were released by the American Red Cross(Figure 3). We could confirm that most one emergency focused applications are precise, intuitive, and have high usability.

Secondly, applications that handle overall emergencies. We could observe they show various functions responding to most emergencies. **EmergencyReadyApp** is one of the representative examples we already mentioned in the introduction section. If the **EmergencyReadyApp** is used in Korea, **Safety tips** is an emergency application used in Japan. This application is an evolved version of **EmergencyReadyApp** in every aspect. The design of the application is aiming to respond to every expected emergency which led to an unfriendly user interface than the **EmergencyReadyApp**.

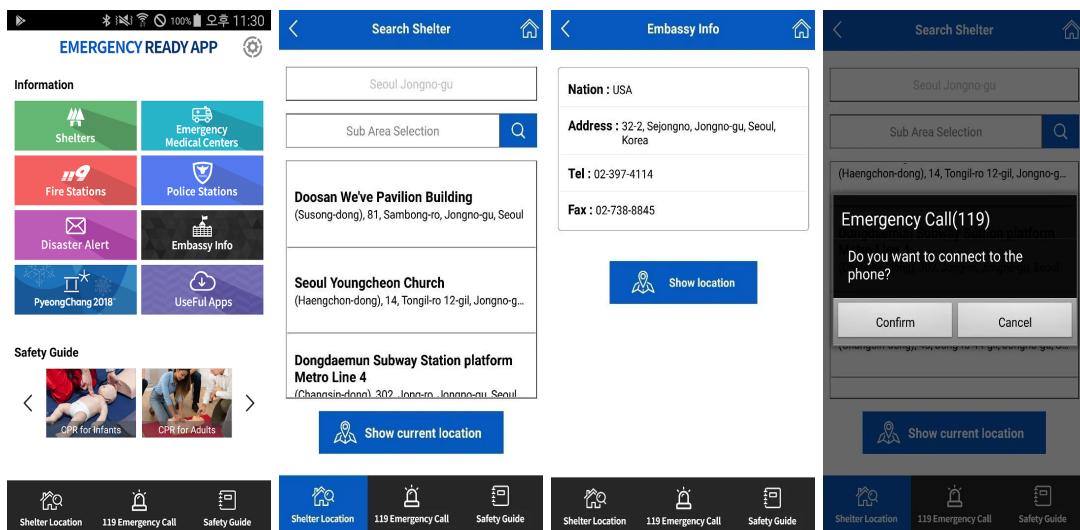


Figure 4. EmergencyReadyApp

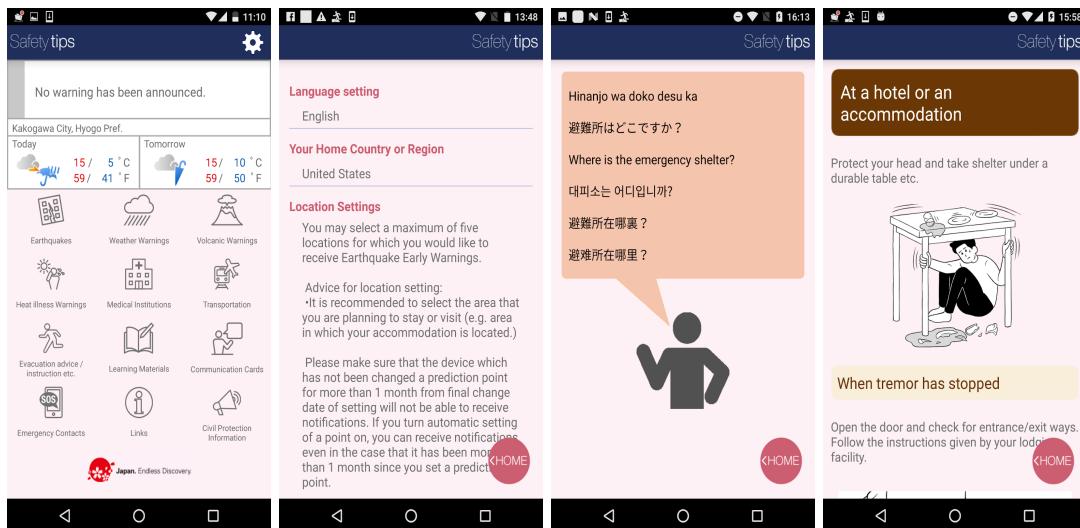


Figure 5. Safety tips

From the existing emergency applications, we could confirm that the overall emergency coverage application has limits on the user interface to complicate and difficult accessibility. Also, the existing one focused emergency-focused application has limits on functionality which obeys our project goal.

Therefore, we could combine the simplicity of the one focused application and various functionality from the general emergency coverage application. To achieve the goal, we should revise the accessibility of various functions based on intuitive user interface design.

- **Target Users**

Our target users are foreigners who stay in Korea and might need emergency help when required. We decided to choose them as they face challenges with the language barrier and are not aware of immediate ways to get help. Our application aims to ease this problem by providing curated solutions for various emergency cases. Having this application at their disposal will also make them confident to live in a country other than theirs. Hence, they are the only users we are targeting for our application.

- **Formative User Research**

- **Interview**

Participants: For our interviews, we aimed at reaching out to foreigners who have lived in Korea for more than a year. We chose our users because we wanted to know of the emergency situations they encountered and how they were able to overcome them. The experiences of our users played a vital role in the application we intend to develop.

Procedure: We were able to meet the two target users for the interview through a friend's contact. Initially we introduced ourselves and emailed them requesting for an interview and eventually had a time slot confirmed for the interview via zoom. At the outset of each interview, we informed them the purpose of the interview, requested to record the conversation and a brief overview about the problem we aim to solve. Parallelly, we took notes, analyzed and synthesized the information collected during the interview.

Results: Both the participants were aged between 25 to 35 years and have stayed in Korea for a minimum of 4 years. They started out with the common emergency cases they came across like health and natural calamity and how they managed to overcome them without using technological solutions. Apart from the conventional emergency situations, they faced difficulty when searching for a new apartment or finding a nearby hospital at the time of need.

As of today, they rely on help from locals, their friends or on the emergency dial numbers. While discussing the features they would appreciate on the application, they stressed on the point to not sacrifice their privacy to access these features. This enlightened and made us cautious about the way we intend to provide help. P2 participant was looking forward to this application as it catered to most of her needs.

The interviewees agreed that our product, Goto Emergency Land app for Foreigners in Korea, would be very helpful. P1 said that it would be great to have emergency messages displayed in their

preferred language, instead of using language translating applications and P2 prefers having remote help from a doctor during a health emergency with the diagnosis and medical prescription shared online as many foreigners might not be able to afford medical insurance in other countries.

○ Online Survey

Participants: For our survey, we aimed at reaching out to foreigners regardless of their residential period. We chose our users because we wanted to expand the range of targets than the interview and analyze the majority opinion of what function would be most useful in a specific emergency situation. Thus we uploaded the designed online survey on two biggest foreigner communities in Korea on facebook.

Procedure: We conducted our research by designing the survey using the google form. We tried to design a short survey as possible, and keep the guideline from the lecture. The online survey was divided into three main parts. Ice breaking part, experience analyzing part and functional requirement part. We collected data by analyzing the result data using the platform.

Results: A total of 29 participants attended our online survey. Mainly, we could observe the participants' emergency experience and their functional needs. For the emergency experience, 10 of 29 participants experienced an emergency which was 34.5%. 60% of them had health emergencies, 30% were related to safety and security emergencies, and 10% experienced natural calamities. We have learned that every emergency could happen, and in high possibility, the health issue might occur most frequently. In the functional requirement part, we collected three aspects of the emergency: Health, security, natural calamities. Mainly, we asked for what could be the most effective method for the user to overcome the emergency. In a health emergency, "Emergency call guide to related public institutions (Medical centers, hospital, etc.)" was the most chosen function rated 86.2%. In personal safety and security, "Step by step guide which is sorted by situations (crime, lost, etc.)" was the most chosen function rated 65.5% and "Emergency call guide to related public institutions (Police, Embassy, etc.)" rated 44.8%. For personal safety in natural calamities, "Map navigation to related public institutions (Shelter)" was 72.4%. Lastly, we asked the participants which additional method would be helpful, and "Multiple contacts to institutions in various emergencies" was the most chosen function, rated 82.8%. Additionally, we received an opinion, "What about making a community share the information about emergency cases.".

● Conclusion

As a result of two interviews and surveys, we learnt that many users had faced challenges when seeking help during an emergency. Overall, they were used to resolving their emergency issues with the help of localities or friends. However, they were acceptive of the new technological solution that could provide quick and reliable help. Hence, we now aim to provide emergency help that can be accessed online in a fraction of time. This would include providing options for emergency help for health, natural calamity and personal security issues. We would also try to provide alert message translations and filtered emergency contact details for the specified emergency condition. This is the service our Goto Emergency land app for Foreigners will be able to provide.

● References

1. [Emergency Alerts For Foreigners Get Lost In Translation](#)
2. [EmergencyReadyApp](#), managed by the Ministry of the Interior and Safety
3. Claudia Nass, Jessica Jung, Eduard C. Groen, Karina Villela, and Konstantin Holl (2018, February) Interaction Modes for Emergency Mobile Apps.
Retrieved from: <https://www.hindawi.com/journals/misy/2018/3437957/>
4. [Foreigners unable to read emergency text alerts from S. Korean government](#)
5. [Offline Survival Manual](#)
6. Shudong WANGa*, Jun IWATAa & Hisashi HATAKEYAMAb (2020) A Survey on The Disaster Preparedness Status of Foreign Residents in Japan.
Retrieved from:
https://apsce.net/icce/icce2020/proceedings/W1-13/W5/ICCE2020-Proceedings-Vol2-W5_5.pdf
7. Application: [Travel Safe - World Emergency Phone Numbers](#)
8. Application: [FEMA](#)
9. Application: [SC Emergency Manager](#)
10. Application: [First Aid: American Red Cross](#)
11. Application: [EmergencyReadyApp](#)
12. Application: [Safety tips](#)

● Appendix

Initial in-class Critique:

1. Provide users with the option to suggest their choice of emergency help.
2. Ask general questions regarding the emergency situations they've faced till date.
3. Include questions that help the user speak out about the emergency situation they faced and what solution they mostly prefer.

Online interviews with the target users:

I. Semi-structured interview

II. Prepared interview questions:

- A. https://docs.google.com/document/d/1xvq-X3naeZORYf-QXX_gbQz5W3TJiVWC6Uy5sOduMD4/edit?usp=sharing

III. Written notes during the session

A. https://drive.google.com/drive/folders/1I9_cLd4t5cBqOXkJT2asX-LSYJiYmSU5?usp=sharing

IV. Audio recording of the session

A. <https://drive.google.com/drive/folders/1QnTi-tSkyWCulniM3Wn3mWe6uFgXgueU?usp=sharing>

V. Time, date, and location of the session: March 21st, 2022 – 16:00 – 16:30 KST and 17:30 – 18:00 KST on Zoom

VI. Interviewer participants

A. Shubhangi Garnaik

1. Main interviewer asking prepared questions
2. Note taking and supporting follow-up questions

Online Survey with foreigners on various social media groups.

I. Structured interview

II. Prepared interview questions

A. https://docs.google.com/document/d/1xvq-X3naeZORYf-QXX_gbQz5W3TJiVWC6Uy5sOduMD4/edit?usp=sharing

B. Survey Link:

https://docs.google.com/forms/d/e/1FAIpQLScJoP5Dxi_GKyzYRSm5ajNHHr4iI2N-aZEVFyvc5-nQyeFWpA/viewform

III. Results

A. Google form responses:

<https://docs.google.com/forms/d/1r9wNNxKE4ooJCGNIVJOHRooKPj2j4FcnoGrTTLndUtk/edit?usp=sharing>

B. Responses in Excel sheet :

<https://drive.google.com/file/d/1EWRZ4gMobwCHINykqCiEzBUGuhh5NNt/view?usp=sharing>

IV. Duration of the survey: March 19th, 2022 - March 26th, 2022

V. Survey participants

A. Youngchan Lim

1. Main surveyor prepared google forms with questions.
2. Followed up with members of the social network group.
Links: [Foreign Students in Korea](#), [Foreigners in South Korea](#)