# Project Report – Working Progress – Group 37

## Executive Summary

With personal safety being such an important issue today, we cannot overlook the value that technology can bring to this, and with the advancement in app development, it is now possible to create an app that could potentially save lives.

The purpose of our project was to design and implement a personal protection app that would alert others if the user were in danger. Our client stated in the project deliverables that they wanted an app that would be able to alert others for help, without any physical input from the user. Therefore, voice activation would be necessary, this way the app can be constantly listening for a specific phrase that the user would say when they felt they were in a threating situation. When the app detects that the specific phrase has been said, it will then send out information including the location of the user, as well as a recording of the users voice to a list of emergency contacts that the user configured on their initial set up, in the form of a text message and/or any social media outlets that the user has selected. Our client wanted an app for both operating systems android and iOS, with the main focus being on android, so we developed the app in Visual Studio using the app development tool Xamarin. Xamarin allows development for native apps in C# for both android and iOS. Being able to easily develop for both android and iOS means that the target audience for the app is not being restricted in any way and we can appeal to a larger demographic.

Through some background research into the concept of a personal protection app, it became apparent that there are similar apps on the market that will send an SOS message to the user’s contacts when a button within the app is pressed. However, an issue with these apps is that they can be prone to false alarms, also there may be certain situations where the user will not be able to reach for their phone i.e. because they may not have time to. The main difference in our app, setting it apart from other apps being developed, is that it is continually listening for your specific phrase and will be able to automatically contact the users’ friends that they have set up.

## Background

Violence and harassment is a constant growing concern in today’s society which can have fatal consequences for victims including mental health issues and even loss of life due to unavailable urgent help. The overall aim of this project was to produce a mobile application that functions as a personal protection system to combat this problem.

Once the application is downloaded, the user must register their details. They can provide these details manually or alternatively they can give the app permission to access their Facebook account where the required details will be collected. The details requested include the users name, email, password and mobile number. Additionally, the user must select three to five emergency contacts, once selected the app will save each of the contacts mobile numbers and save a reference to their Facebook Messenger in order to send both a text message and online message when alerted.

Once registered, an email confirmation will be sent for the user to verify their account. Following verification, the user must record a word/phrase they would like to use to trigger the applications voice activation along with an alert message to send to the emergency contacts - this will complete the configuration stage of the application.

When the application is turned on, it will run in the background of the users’ system and remain invisible during normal phone use. If the user determines they are in danger and wants to alert someone, they would say the pre-recorded word/phrase and the saved alert message would be broadcast to the stored contacts along with a google image of the users’ exact location.

Upon completing this project, we will deliver a fully functioning prototype that meets our clients’ previously discussed requirements. The working prototype will have an innovative, appealing user interface and feature all the applications capabilities. We will also be providing our client with a configured server which will have a database connected to the application through the necessary APIs, the database will store all registered users details along with their five emergency contacts details.

Additionally, we will provide all the documentation we created throughout the project which will be needed to help the continuing development of the mobile application and support future developers who will adapt our code. Other documentation we will provide includes a test plan, test cases and a user and technical guide which will provide our client and users with step by step directions for configuring and using the mobile application.

The primary limitation that we needed to consider for this project was our lack of experience. There were multiple aspects of this project that the members of the group had no knowledge of. Voice activation for example, no member had previously implemented this in a mobile application and therefore, a lot of time had to be spent researching and finding materials on how to include this feature.

Other limitations included resources and budget. We didn’t have a budget for the project and therefore, all designing, and development had to be completed on the resources provided by the University or free releases of software. This impacted the overall quality of the application, as certain features could have been done better using professional software.

Regarding the limitations of the application itself, an initial request from the client was to place the application in the settings folder of a user’s mobile. As a team, we researched this possibility, but we were unsuccessful in finding useful material on the subject and therefore determined that we couldn’t achieve this request.

We also had to consider the battery life of a user’s mobile which will be substantially impacted when running this application in the background of their system constantly. We assessed different methods for assessing and limiting power consumption but struggled to find an effective solution and therefore, this issue will limit the mobile application.

There are multiple stakeholders involved in our project, primarily our client who has set out the main aims and requirements for the application. This was our most important stakeholder as they already had an idea of what they wanted achieved and therefore, we had to satisfy these ideas with our designs and implementations.

Another clear stakeholder in our project was the users, it was vital that we knew our target audience in order to tailor the app to them which greatly influenced our application design and structure. We determined that this app was for the mass majority of the public and therefore, it had to be extremely easy to use for even novice users.

## Results

## Project Management

At our initial group meeting, we agreed to use an Agile framework to complete the project, in which, we would split the team into different roles that focus on different sections of the project overview. We had a discussion to identify each group members strengths and experiences to achieve effective task allocation. From this discussion we found we had members from a design background, a software background and members with extensive knowledge in server and database configuration.

Once we met our client and received a full breakdown of the project requirements, we used the knowledge gained from our initial meeting to allocate tasks. A design team was formed to create a beautiful graphical design which was stated in the project overview and a development team was set up for the implementation of the project, with different tasks being allocated to individuals and small groups being formed within the team. The task breakdown technique has been functioning very well for the team because it has ensured all members are working within their strengths and producing the best output of work for the client.

Regarding communication, we decided to use Facebook Messenger as our primary tool. We formed a group chat so that we could send instant messages to every member. This form of communication is very informal and has produced issues within the project because messages sent in the chat can easily go unread and therefore, information has been missed by members of the group. Because of this, we decided to use a more formal method of communication using the University email as it ensures that all members of the team receive the message. We have also kept our Facebook group for informal matters only.

Additionally, the team has weekly meetings to discuss the development of the project, to allocate the impending tasks for the week and to rectify any issues that may have occurred. We have found these meetings to be very beneficial because it provides an opportunity to brainstorm new ideas and methods to achieve our project goals. However, we have encountered problems where we have had unproductive meetings in which nothing constructive was discussed. To solve this issue, we decided to create talking points before each meeting, which allowed every member to voice their concerns and provides us with a structure.

The team has been trying to have a weekly meeting with the project supervisor to receive productive feedback and guidance in the progression of the mobile application and overall project goals. This has proved to be difficult due to scheduling, with the project supervisors timetable and the team member’s different module timetables. We have tried to solve this problem by ensuring as many group members as possible attend the meetings and create minutes which are then communicated back to the entire group.

For file sharing, we have been using a GitHub repository. Through this, each member can share, edit and commit files easily. The use of GitHub has been effective as all members have been able to link their Visual Studio accounts to the repository, allowing efficient code updates.

The team contribution Microsoft Excel worksheet is being kept up to date on a weekly basis as a means of assessing each team member’s contribution.

As far as deliverables and milestones are concerned, so far, the team is on schedule with the design and implementation of a beautiful interface and the sign up and sign in functions of the App.

## Conclusion

## References

## Appendix A

## Appendix B

## Appendix C

## Appendix D