Requirements Document

1. Project Triggers

1.1. Purpose of the system

The purpose of the system is to remove the need to hire expensive interpretation equipment at an event where simultaneous interpretation is needed. Replacing the equipment with a system that can be used on a mobile device or laptop, allows listeners, interpreters and speakers to attend an event remotely instead of needing to physically attend in person. The system will allow a speaker to speak into their device, an interpreter from their device can then listen to the speaker and provide a translation simultaneously, listeners can then listen to the translation through their device.

1.2. Client, customers, stakeholders

Client

1.2.1. Vini Olsen-Reeder

Customer

1.2.2. Listeners who want to hear an event in their own language preference

1.2.3. Professional language interpreters

1.2.4. Guest speaker

1.2.5. Vini Olsen-Reeder

Stakeholders

1.2.6. Vini Olsen-Reeder

1.2.7. Our client's associates

1.3. Users of the system

1.3.1. Guest speakers (Host)

1.3.2. People that want to hear the event in another language (Listener)

1.3.3. Professional language interpreters

2. Restrictions of the project

2.1. Mandatory restrictions

Testing: A testing opportunity at a symposium in September heavily depends on our client receiving funding before the end of May. Other testing opportunities are also dependent on our client being able to organize an event, we may be restricted to only being able to test at the University.

2.2. Facts and assumptions

We were given the option to implement a web application and/or a mobile application. With our given time frame, we made the assumption that we would only be able to implement the application on one platform and after discussing with our client we have chosen a web application.

3. Functional requirements

3.1. Scope of the work

Simultaneous interpretation is currently performed using specialised expensive equipment available for hire. Each participant must have an earpiece and interpreters and speakers must have a microphone. This equipment is connected to a physical system which must be physically set up prior to an event. Interpreters translate what a speaker is saying and depending on the language of a listener, they are connected to the speaker or a translator to understand what they are saying. Our system is being developed to replace the current system of simultaneous interpretation.

3.2. Scope of the system

The system will allow a speaker to create an event where an interpreter and listeners can join the event with an event code. The speaker can speak into their device and the system will live-stream their voice to the interpreter via a server. The interpreter from their device can listen to the speaker and provide a translation simultaneously in their specified language and the system will live-stream their voice to listeners. Listeners can then listen to the translation through their device.

3.3. Functional and data requirements

Speakers

3.3.1. can create an event and event code

3.3.2. can stream their voice to interpreters

Listeners

3.3.3. can join an event with an event code

3.3.4. can listen to an interpreter

Interpreters

3.3.5. can join an event with an event code

3.3.6. can specify their language

3.3.7. can listen to the speaker of the event

3.3.8. can stream their translation of the speaker to listeners

4. Non-functional requirements

4.1. Appearance

Design

4.1.1. Design logo

4.1.2. Theme colours of the web application

4.2. Usability

4.2.1. User-Interface that fits both PC and mobile devices

4.2.2. Language flexibility in the User-Interface, e.g. having both English and Te Reo.

4.3. Performance

4.3.1. In a live-streaming event, minimisation of delay is valuable

4.3.2. Server handling is another valuable requirement since there will be different kinds of users accessing the application

4.4. Operational

4.4.1. The web application must be able to function on PC and mobile devices using a range of web browsers.

4.5. Maintenance and support

Any type of server to maintain and support for an event that is being broadcast to the listeners and interpreters. A local server could be used as a temporary server while working on a prototype.

4.6. Security

Avoiding a security breach is mandatory as the application will be running a live-stream event on the server, so to make sure the event is uninterrupted we need a secured server. Being able to create a secured server would also be required for our stretch goal, as it would require us to run a private event where uninvited users are prohibited to join.

4.7. Cultural and political

Our main cultural requirements would evolve around Maori culture as this web application's minimum viable product are targeted around the language Te Reo Maori. Our content will take into considerations religions, languages, taboos and prejudices that could potentially offend our target users.

4.8. Legal

Our legal requirements are limited as being a software and networking only project. The only possible danger that we may take into account to ensure the safety, health and welfare of the team are the use of computers.

5. Project issues

5.1. Open issues

5.1.1. Possibly need to design logo for the system.

5.1.2. External contributions requires the external worker to assign their Intellectual Property to our client.

5.2. Immediate solutions

5.2.1. Use of possible external libraries such as WebRTC and Node.js to help with audio streaming.

5.2.2. Seeking an external designer to design a logo for us or design the logo ourselves internally. If designed internally, will need to decide who has the ability to.

5.3. New problems

5.3.1. Once the system is in operation, eventually users need to be able to use the application without our assistance.

5.3.2. A formal agreement is required for the external worker and our client to assign the Intellectual Property

5.4. Ideas for solutions

5.4.1. Discuss in meeting on who in the team are able to create a Minimum Viable Logo

5.4.2. Create an Intellectual Property Agreement between our client and the external worker

5.5. Migration to the new system

As we are focusing on a web application first, our server will be mainly focused on supporting a web application but an issue would likely arise whenever we try to migrate a mobile application into our server, as we need them to be able to connect to the same server.

5.6. Costs

A cost to create a server is required and having to maintain a server requires risks that includes the server for crashing or breaking which could mean a waste of money within in our limited budget. Requiring an external worker to design our logo also requires cost issues as we will need to decide an agreement on how much they are willing to design the logo for us which obviously requires for it to be inside our budget limit.

5.7. Waiting room

5.7.1. Allow for two speakers who speak different languages to have a conversation via an interpreter.

5.7.2. Allow for multiple interpreters to join and each translate to a different language

5.7.3. Implement the system for an android app

5.8. Privacy

One of our stretch is goals is to be able to allow the application to run a private event that will be used for some private conversations.