**System Requirements Specification**

**3.1 Introduction**

Without communication no one can deliver ideas to others. People use languages to communicate with others. Languages are of different kinds based on the areas where they are spoken. There are some languages which are used by the impaired people to communicate with each other. Normal people also learn these languages to talk with the impaired people and communication with the impaired people have now become very important. In past impaired people felt shy while communicating with the normal person but now as they are working and performing their duties side by side to the normal person so communication have become very important for the normal persons as well as the impaired ones

This section deliver the basic introduction and background information about the application “Web base Application System for Deaf and Dumb people”. This section will also be explaining all the phases from which the system is developed and designed. System includes several phases like Speech to Sign, Text to Speech phase. System will also be beneficial for those who want to learn the American Sign Language and to evaluate the knowledge about the American Sign Language. System will also be including the feedback portal for the users to give the feedback in order to improve the website.

**3.2 Purpose**

Communicating with impaired people like deaf and dumb have been become very difficult for those who are not familiar with the Sign Language used by the deaf and dumb person. Our target is to develop an application which overcome the barriers between the impaired persons like deaf and dumb and the normal ones. Traditional techniques like learning by books is very difficult because everyone don’t have access to the book as well as everyone also don’t have much time to read every book on every language. The purpose to design this application is to overcome the communication gap between the normal persons and the impaired people. This system is also designed for the people who want to learn American Sign Language. This system will not only be covering the communication system but also help others to learn sign language. System not only targets the impaired people but also the normal ones or the users who want to learn the signs. This system will also be very effective for those who have some knowledge about the American Sign Language because Quiz competition is also added to the purposed system in which user can take part in Quiz competition and evaluate him/herself by getting the result by the system. User can also add account to the system, to add signs and contributes to increase the database of the system. There will also be a section to give feedback to the system. Users can help the development team by giving them relevant feedback on the system functionality.

**3.3 Reading suggestions for the audience**

Users, Project managers, Documentation writers and Developers can get relevant information from this section. This Software Requirement Specification explains the functionality of the system and how text to speech and speech to sign perform responsibilities in overcoming the communication gap between normal and the deaf and dumb. This section will also be explaining how people learn the American Sign Language by using the system and how they can evaluate them. This application also give the basic information of the deaf and dumb people. How they communicate with each other and what is their source of communication?

**3.4 Product Scope**

For an effective communication among deaf and dumb people and normal people this application can be beneficial because this application not only gave the functionality of the communication but we have also incorporated the learning mechanism in our application. This factor can help the user either the deaf or dumb or the normal person to learn different kinds of signs by looking at them, search for particular sign or by uploading the American Sign Language signs or videos in to the database. This application is not the communication system but it is also design to set the learning platform for the people of different types. Users can register themselves in the application but moreover the unregister users can also visit our website. Learning will not be possible for the unregister user but they just only use the application for only the communication purposes. Application targets the people who want to communicate or to learn the American Sign Language.

**3.5 Overall Description**

**3.5.1 Product Perspective**

Effective communication is the main goal of our application because to let someone understand what actually we are trying to say become challenging for us and if there is the possibility to let the impaired person to understand our talk, it become more challenging because we often don’t have ideas what is the specific sign of particular word. System will help the user to speak and relevant sign will be shown or the user can speak the relevant text will be shown. Learning the American Sign Language is also a part of this project.

**3.5.2 Product Functions**

There are major two functions of our project which are discus below

* Text to Speech: This functionality will help the user to speak and when he finishes the relevant text of the speech will be shown in the text area of the application. This can be helpful for a person who want to communicate with the dumb person only.
* Speech to Sign: This functionality will be helpful for a user who want to communicate with the person who is deaf. Speech will be given as input while the relevant sign or the picture will be the output of that particular speech.

Others functionalities includes the learning phase. In this phase user can register him/her-self into the application and get the access to the learning page. On learning page user can learn the American Sign Language by looking at different sign, or by search for signs or by helping others to know the signs which he/she know in the way to upload the sign by giving user id and the description and verifying him/her-self by the application. There is another part to the learning phase which is called as quiz. In this section we have managed a quiz competition in order to help user to evaluate him/her-self, which he has learning from learning phase.

**3.5.3 Characteristic and user classes**

Main user classes that are used in this system are described below

* Text to Speech
* Speech to Sign
* Learning System
* Quiz Competition

**3.6 Operating Environment**

**OS:** It is web base application and can be run on every device having internet connection. This system uses C# language in its coding.

**Tool packages:** This application is design on Visual Studio Professional by using C# as its programming language. Designing is done in ASP.NET frame work and Application Programming Interfaces are used.

**3.7 Design and Implementation**

**3.7.1 Portability**

As it is web base application, so it can be opened on every platform i.e. Mobile, Personal Computers etc. But the device should be connected to internet. This system can be uses the internet to get access to the server in order to load and show images and the video against the speech in Speech to Sign page.

**3.7.2 Platform dependency**

Visual Studio is the tool of windows but it coding versions are also available on Linux and Mac so it is designing is and implementation of the application is not platform dependent.

**3.7.3 Authentication**

Visual Studio is closed source programing tool. To work professional we have to pay for that so we need some authentication to use this tool.

**3.8 System Features**

* Text to Speech
* Speech to Sign
* Text to Sign
* Learning
* Quiz Competition
* User Registration
* User Login
* Admin Panel
* Uploading Images

**3.9 Functional Requirements**

* Input of Speech and getting the output image or video.
* Input of speech and getting the output as voice.
* Input as text and getting output as Sign.
* Learning by different signs.
* Participating in the quiz to evaluate the learning.

**3.10 Non-Functional Requirements**

* Performance Requirements.
* Application Quality Attributes.
* Reliability.
* Portability.

**3.11 Feasibility Study**

Feasibility study shows that whether the proposed system is feasible and will meet the requirements of the user effectively and efficiently.

**3.11.1 Financial Feasibility**

The tool which is used in the development of the application is not so expensive as well as trail versions of visual studio is also available in the market. You can also download the trial version. So the outcome of the application is low although the tool is paid. So the project or the system is feasible economically.

**3.11.2 Technical Feasibility**

Mobile phones, Laptops, Personal Computers are required to run this application.