

SIGN LANGUAGE RECOGNITION AND TRANSLATION

(SRS REPORT)

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Revision History

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| **Name** | **Date** | **Reason For Changes** | **Version** |
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**1.Introduction**

There have been several advancements in technology and a lot of research has been done to help the people who are deaf and dumb. Aiding the cause, Deep learning, and computer vision can be used too to make an impact on this cause.

This can be very helpful for the deaf and dumb people in communicating with others as knowing sign language is not something that is common to all, moreover, this can be extended to creating automatic editors, where the person can easily write by just their hand gestures.

The Sign Language app is an Android application which can translate static ASL and BSL signs, such as the fingerspelling alphabet. These translated signs can be displayed to the user whilist allowing for sentences to be constructed. The app is currently a proof of concept to illustrate low-cost, freely available and offline Sign Language recognition using purely visual data

# Purpose

* To provide an efficient and accurate way to covert sign language into text or voice.
* To break the barrier in between normal person and special enabled people .
* To ease the communication between normal people(especially police and doctors) and deaf-mute.
* To help them in making their day to day life much easier.

# Methodology

**.** **Java 8** –

Java 8 is a revolutionary release of the world’s development platform. It includes huge upgrade to the Java language, and libraries. Java programming model and a coordinated evolution of the JVM, Java language, and libraries. Java 8 includes features for productivity, ease of use, improved polygot programming , security and improved performance. Welcome to the latest iteration of the largest, open, standard-based, community-driven platform.  
 **. Android Studio –**

Android Studio is the fastest developer tools for building market-leading apps and accelerating performance. With an intelligent code editor, flexible build system, realtime profilers and emulators. Building without limits. Optimize code workflow. Eliminate tiresome tasks. Android Studio is the official [integrated development environment](https://en.wikipedia.org/wiki/Integrated_development_environment) (IDE) for [Google](https://en.wikipedia.org/wiki/Google)'s [Android](https://en.wikipedia.org/wiki/Android_(operating_system)) [operating system](https://en.wikipedia.org/wiki/Operating_system), built on [JetBrains](https://en.wikipedia.org/wiki/JetBrains)' [IntelliJ IDEA](https://en.wikipedia.org/wiki/IntelliJ_IDEA) software and designed specifically for [Android development](https://en.wikipedia.org/wiki/Android_software_development). It is available for download on [Windows](https://en.wikipedia.org/wiki/Windows), [macOS](https://en.wikipedia.org/wiki/MacOS) and [Linux](https://en.wikipedia.org/wiki/Linux) based operating systems. It is a replacement for the [Eclipse Android Development Tools](https://en.wikipedia.org/wiki/Eclipse_(software)#Android_Development_Tools) (E-ADT) as the primary IDE for native Android application development. Android Studio is the fastest developer tools for building market-leading apps and accelerating performance. With an intelligent code editor, flexible build system, realtime profilers and emulators. Building without limits. Optimize code workflow. Eliminate tiresome tasks. Android Studio provides app builders with an integrated development environment (IDE) optimized for Android apps.

**. Gradle –**

**Gradle** is a [build automation](https://en.wikipedia.org/wiki/Build_automation) tool for multi-language software development. It controls the development process in the tasks of compilation and packaging to testing, deployment, and publishing. Supported languages include Java (as well as [Kotlin](https://en.wikipedia.org/wiki/Kotlin_(programming_language)), [Groovy](https://en.wikipedia.org/wiki/Groovy_programming_language), [Scala](https://en.wikipedia.org/wiki/Scala_(programming_language))), [C](https://en.wikipedia.org/wiki/C_(programming_language))/[C++](https://en.wikipedia.org/wiki/C%2B%2B), and [JavaScript](https://en.wikipedia.org/wiki/JavaScript). It also collects statistical data about the usage of software libraries around the globe.

**Android Studio** uses **Gradle,** an advanced build toolkit, to automate and manage the build process, while allowing you to define flexible custom build confrigurations. Each build configuration can define its own set of code and resources, while reusing the parts common to all version of your app.

**. OpenCV-**

OpenCV (Open Source Computer Vision Library) is a [library of programming functions](https://en.wikipedia.org/wiki/Library_(computing)) mainly aimed at real-time [computer vision](https://en.wikipedia.org/wiki/Computer_vision). Originally developed by [Intel](https://en.wikipedia.org/wiki/Intel_Corporation), it was later supported by [Willow Garage](https://en.wikipedia.org/wiki/Willow_Garage) then Itseez (which was later acquired by Intel). The library is [cross-platform](https://en.wikipedia.org/wiki/Cross-platform) and free for use under the [open-source](https://en.wikipedia.org/wiki/Open-source_software) [Apache 2 License](https://en.wikipedia.org/wiki/Apache_License). Starting with 2011, OpenCV features GPU acceleration for real-time operations.

# FUNCTIONAL REQUIREMENTS

Functional requirements of our project explain the functionalities that must be provided by each module of our project. The following are the functional requirements for our application as listed below,

# DRAWBACKS OF EXISTING SYSTEM

**.** In the existing system only the numerical sign or alphabets sign are recognised and translated .   
**.** The existing application is only restricted to few sign language symbols.   
**.** There is no existing application gives common inpretation between common language and sign language

# PROPOSED SYSTEMS

**.** all the known sign language symbols

and much more user friendly interface. This app we are building also provide a free sign language tutorial class for the user , this educate the user to learn sign language when there is no availability of the phone

# SYSTEM DESIGN

System design is used to create the system in accordance with how the project is functioning, It focus on preparing the modules and the specification which are needed for the system and also how those modules are interconnected and how the data are shared from one to another to produce the system efficiently.

# REFERENCES