English to British Sign Language Translator Website

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**Project Description:**

**Problem:** Even with our contemporary technological advances, it is still quite difficult for someone who does not know sign language to communicate with a deaf individual who does. A simple Google search query result illustrates the issue perfectly. If one attempts to search for British sign language translators online the closest matching result to the query will be an English-to-BSL dictionary, because most sign language translating services aren’t really translators, rather are dictionaries. Effectively speaking, individuals trying to translate a statement or thought into BSL would have to search each word in the sentence individually and remember past gestures, when in reality it is possible to display numerous different words at once. Additionally, to make the problem even worse, many sites limit their searches per day for free users and require membership to receive the full user experience.

**Goal:** This project aims to provide a user the ability to submit English text and receive corresponding BSL videos pertaining to what he/she submitted. For words where no BSL video exists, corresponding hand gestures spelling out the word will be given. Accomplishing this will greatly ease the process of communicating or learning BSL much simpler for those who do not already know it -- and best of all free of charge for all users.

**System Requirements:**

**Functional Requirements:**

|  |  |  |
| --- | --- | --- |
| **Identifier** | **Priority** | **Requirement** |
| REQ1 | **5** | Site must translate the word to the appropriate corresponding version in BSL |
| REQ2 | **4** | If BSL video for word doesn’t exist, the spelling of the word will be given in BSL |
| REQ3 | **4** | Translation will be correct semantically |
| REQ4 | **3** | Translation will be correct syntactically |
| REQ5 | **2** | Translation will be pragmatically correct |

**Non-Functional Requirements:**

|  |  |  |
| --- | --- | --- |
| **Identifier** | **Priority** | **Requirement** |
| nREQ1 | **3** | Site’s design will follow material design specifications |
| nREQ2 | **2** | Site will be hosted on Heroku (free for low traffic) |
| nREQ3 | **2** | Site will be able to balance heavy user load |
| nREQ4 | **3** | Should not take more than 20 seconds to display results for average user internet speeds submitting an average query |
| nREQ5 | **4** | Site will look the same and function on all modern browser |
| nREQ6 | **3** | Site will have a mobile-responsive version as well |

**User Stories:**

|  |  |  |
| --- | --- | --- |
| **Identifier** | **User Story** | **Size** |
| **ST-01** | The site really saves me time when trying to talk to my deaf cousin | **4** |
| **ST-02** | Site gets the job done in a nice, fast, and free manner | **2** |
| **ST-03** | As someone trying to learn BSL, the site helped me learn a lot! | **3** |
| **ST-04** | Site looks great and the videos were easy to replicate to my deaf co-worker | **3** |
| **ST-05** | As a deaf BSL speaker, I suggest people use this site to communicate with deaf people around our school and community | **4** |

**Use Cases:**

|  |  |  |
| --- | --- | --- |
| **Actor** | **Actor’s Goal** | **Use Case Name** |
| Communicator | To translate thought into BSL | **Translate (UC-1)** |
| Communicator | To get sequence of letters for word | **Transcribe (UC-2)** |
| Learner | To translate phrase into BSL | **Translate (UC-1)** |
| Learner | To get sequence of letters for word | **Transcribe (UC-2)** |
| Co-worker | To translate thought into BSL | **Translate (UC-1)** |
| Relative | To translate thought into BSL | **Translate (UC-1)** |

**Traceability Matrix:**

|  |  |  |  |
| --- | --- | --- | --- |
| **Requirement** | **PW** | UC-1 UC-2 |  |
| REQ1 | 5 | X X |  |
| REQ2 | 3 | X |  |
| REQ3 | 4 | X X |  |
| REQ4 | 2 | X |  |
| REQ5 | 1 | X |  |
| **Max PW** | 5 | 4 2 |  |
| **Total PW** | 20 | 9 3 |  |

**Class Diagram:**

|  |
| --- |
| HelperFunctions  + getUrl()  +makeLatterMap()  + getHtml()  + wordExists()  + isValidCharacter()  +sentToArray() |

\*1

Test

\*0

|  |
| --- |
| CalculatorTest  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  + sampleHTML: string  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  + getUrlPostiveTest() : void  + getUrlNegativeTest() : void  + makeLettersMapPostiveTest() : void  + getHtmlPostiveTest() : void  + getHtmlNegativeTest() : void  + wordExistPostiveTest() : void  + wordExistNegativeTest() : void  + sentToWordArrPostiveTest() : void  + sentToWordArrNegativeTest() : void  + isValidCharPostiveTest() : void  + rootRoutePostiveTest() : void  + rootRoutePostiveTest() : void  + rootRoutePostiveTest() : void |

**Sequence Diagram:**

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| --- |
| User |

|  |
| --- |
| Website |

|  |
| --- |
| API’s call to SignBSL |

|  |
| --- |
|  |

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| --- |
|  |

* 1. Enter word or sentence.

1.2 Searches correct letters or vids.

|  |
| --- |
|  |

1.3 Translation returned semantically and syntactically correctly.