**User Stories**------------------------------------------------------------------------------------------------------------------------------------------**Sprint 1**  
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#670 Learn Leap API  
Description:

* As a developer, I want to read the Leap Motion Controller documentation, so that I can begin development on the project.

Acceptance Criteria:

1. Select a programming language.

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#671 Learn Real Sense API  
Description:

* As a developer, I want to read the Real Sense Camera documentation, so that I can begin development on the project.

Acceptance Criteria:

1. Select a programming language.

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#672 Build a mini Leap enabled program  
Description:

* As a developer, I want to build a miniature test program that is Leap enabled, so that I can begin exploring what is and is not possible with the API.

Acceptance Criteria:

1. Successfully compile a Leap enabled program.

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**Sprint 2**  
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#710 Design – Gesture Process  
Description:

* As a user, I would like to capture a gesture, save that gesture, replay that gesture, and be able to delete that gesture if needed, so that I can use those gestures to create a library of American Sign Language gestures.

Acceptance Criteria:

1. Implement a way to pull hand vector data from the mini application and save it to a file.
2. Design the gesture process for the Leap Motion Controller.
3. Design a mock interface for the user.

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#713 Research – Template matching  
Description:

* As a developer, I want to perform research on template matching so that I might be able to implement a working algorithm that can recognize a gesture.

Acceptance Criteria:

1. Find a suitable and logical way to implement template matching.

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**Sprint 3**  
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#726 Build – Database of ASL Alphabet   
Description:

* As a developer, I need to build a database of gestures so that the application can be trained to recognize those gestures in real-time when performed.

Acceptance Criteria:

1. Capture vector data for as many ASL letters that can be recognized by the Leap Motion Controller.
2. Aim for a sample size of approx. 50 recordings per gesture.

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#725 Improve – Output of JSON file  
Description:

* As a developer, I want to improve the quality of the output as it is presently too raw, so that the JSON file can be used to create a database.

Acceptance Criteria:

1. Limit output to a single frame or the mean of vector data collected in the set of frames.
2. Format the JSON from raw data to well-formed.

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**Sprint 4**  
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#727 Evaluate – Machine Learning Algorithms using Weka & Constructed database  
Description:

* As a developer, I want to evaluate different machine learning algorithms so that I can find the best or most practical solution to recognize gestures in real-time.

Acceptance Criteria:

1. Evaluate as many MLA’s as reasonably possible and select the one with the highest hit-rate.

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#739 Begin To Implement – A Machine Learning Algorithm from Resulting Data  
Description:

* As a developer, I want to use the data collected from user story #727 to select the appropriate machine learning algorithm so that I can begin to implement the real-time gesture recognition feature.

Acceptance Criteria:

1. Begin to design the structure of the MLA selected.
2. Design the architecture that will pass recorded vector data to the MLA subsystem for processing.
3. Determine if recorded data set is sufficient.

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**Sprint 5**  
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#741 Continue To Implement - A Machine Learning Algorithm from Resulting Data:

* As a developer, I want to continue to work on the Nearest Neighbor approach MLA selected from the data from user story [#727](https://fiu-scis-seniorproject.mingle.thoughtworks.com/projects/ar_vr_ve_for_computer_science_/cards/727) to continue to implement the real-time gesture recognition feature.

Acceptance Criteria:

1. Design the architecture that will pass recorded vector data to the MLA subsystem for processing.
2. Get the program to perform some interpretation in real-time.

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**Sprint 6**  
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#756 Finish Implementing - A Machine Learning Algorithm:

* As a developer, I want to finish my work on the Nearest Neighbor approach MLA selected from the data from user story [#727](https://fiu-scis-seniorproject.mingle.thoughtworks.com/projects/ar_vr_ve_for_computer_science_/cards/727) to improve the current implementation of the real-time gesture recognition feature.

Acceptance Criteria:

1. Get the program to perform gesture recognition in real-time, with an acceptable hit-rate of at least 50%.

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