*Florida International University*

*School of Computing and Information Sciences*

Software Engineering Focus

Feature Document

User Story ID: #741 Continue To Implement – A Machine Learning Algorithm from Resulting Data

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**Project:** AR-VR-VE for Computer Science (Multimodal Interaction with ASL use case)

**Product Owner(s)**: Francisco Ortega

**Mentor(s)**: Francisco Ortega

**Instructor**: Francisco Ortega, Masoud Sadjadi

**User Story Name: 741 Continue To Implement – A Machine Learning Algorithm from Resulting Data**

Description:

* 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:

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

**Use Case**: **Gesture Recognition**

**Participating Actor:**

* User

**Entry Condition:**

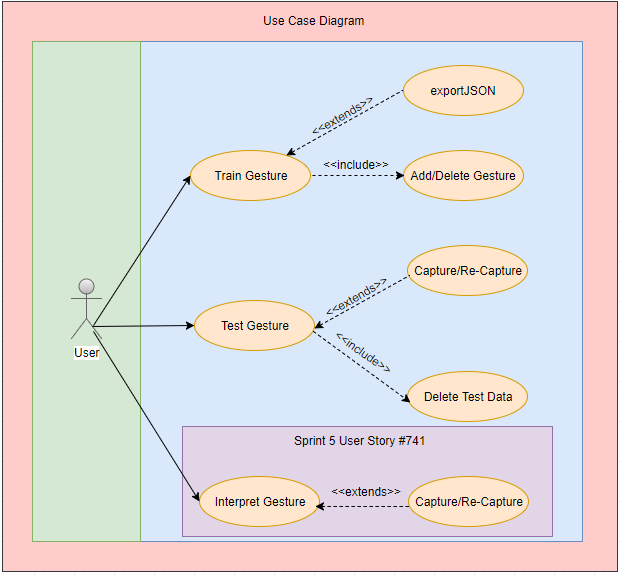
* Actor must have application running and Leap Motion controller plugged in.
* Actor must have recorded gestures and trained the application.
* Actor must be on interpreter form.
* Actor must have hit interpret button.

**Exit Condition:**

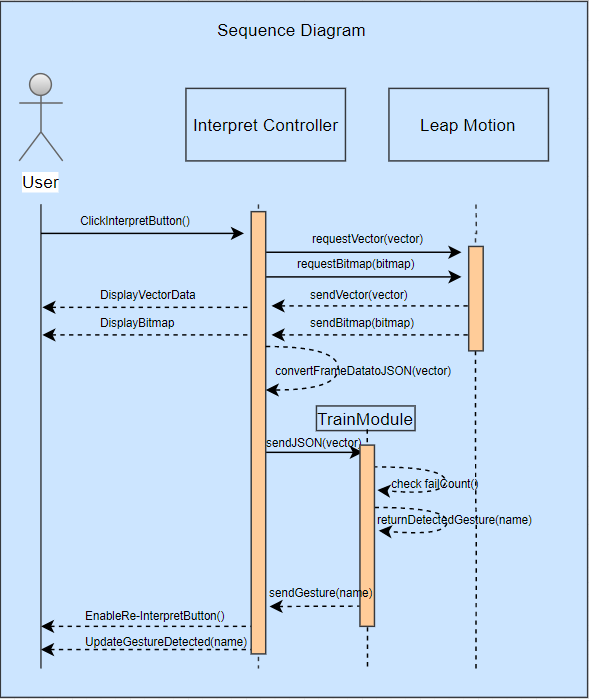
* The capture is completed.
* The actor is notified that the capture has completed and is given the option to recapture a new gesture to interpret.
* The detected gesture is displayed.
* The Hit-Rate is displayed.

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| --- | --- |
| **Actor Steps** | **System Steps** |
| 1. The actor moves their hand in front of the Leap Motion Device Field of View, performs a gesture, and hits interpret. |  |
|  | 2. The system activates the Leap Motion Device and begins to poll vector data. |
|  | 3. The system captures the physical gestures. |
|  | 4. The system compares vector data between the captured and all recorded frames in the program library, then outputs hit-rate of all tested gestures. |
|  | 5. The system outputs the gesture name to the “gesture detected” label |
| 6. The actor can choose to recapture a new gesture frame for interpretation. |  |

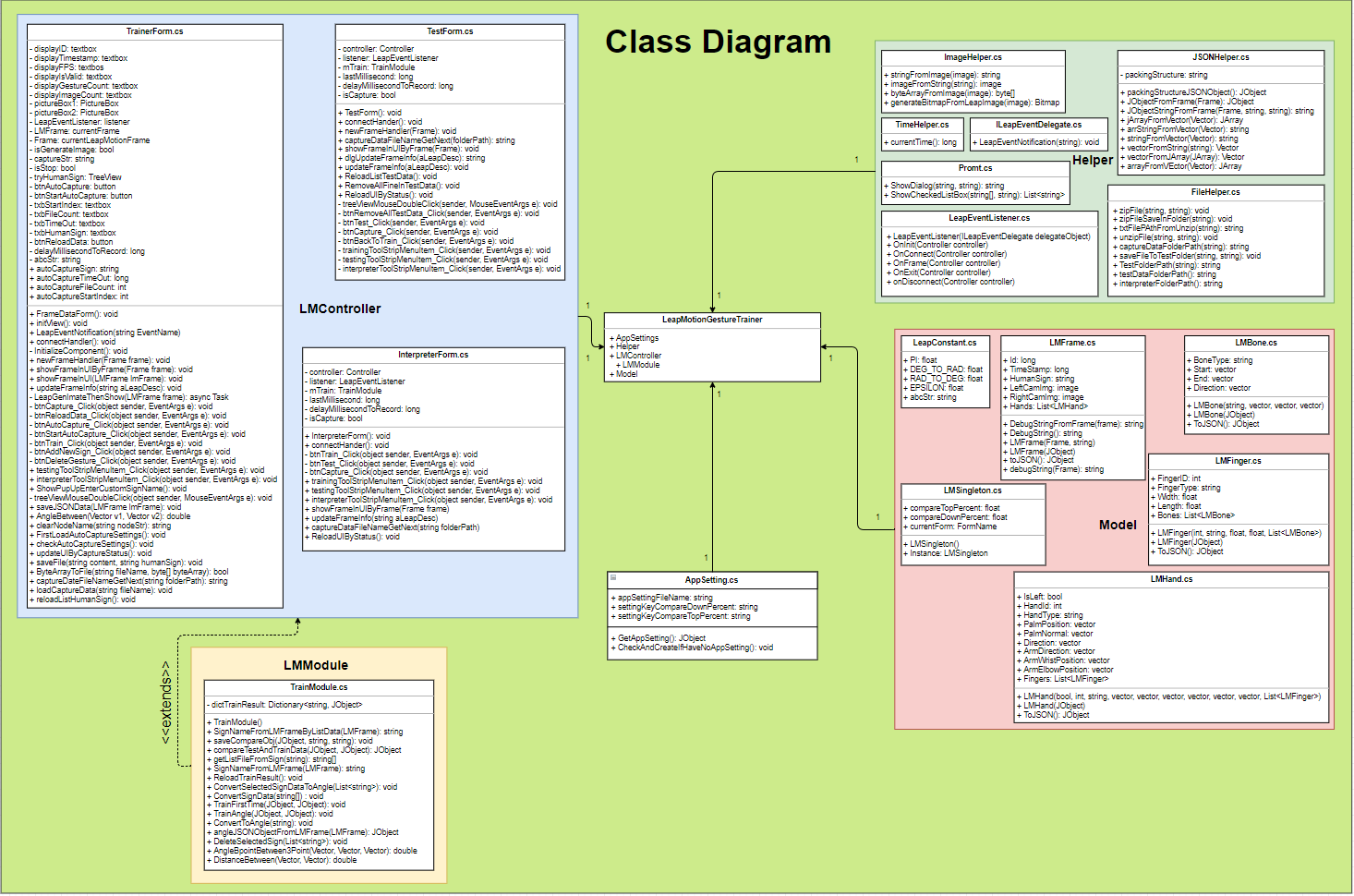
**Use Case Diagram**



**Sequence Diagram**



**Class Diagram**



**Unit Test** -Coming Soon

* Test case ID:
* Description/Summary of Test:
* Pre-condition:
* Expected Results:
* Actual Result:
* Status (Fail/Pass):

**Integration Test**

**Visual User Guide**

