**Project Design Phase-II**

**Solution Requirements (Functional & Non-functional)**

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| Date | 07 October 2022 |
| Team ID | PNT2022TMID16219 |
| Project Name | A Gesture-based Tool for Sterile Browsing of Radiology Images |

**Functional Requirements:**

Following are the functional requirements of the proposed solution.

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| **FR No.** | **Functional Requirement (Epic)** | **Sub Requirement (Story / Sub-Task)** |
| FR-1 | Accessing dataset | * Datasets are collected by data preprocessing method then followed by data visualization. |
| FR-2 | Classification of dataset | * Dataset includes of data exploration to train the model accordingly. |
| FR-3 | Splitting and train the data | * In this phase, we split the dataset into training and test dataset and then train the models using training dataset using CNN. * We have used CNN (Convolution Neural Network) to train the model using various images of different hand gestures. * Made a web application using flask where the user can upload the image which he wants to browse through. |
| FR-4 | Test the model | * In this phase, we tested the accuracy, precision and sensitivity of the models with the test dataset that was formed in previous phase and the most accurate model is figured out. |

**Non-functional Requirements:**

Following are the non-functional requirements of the proposed solution.

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| **FR No.** | **Non-Functional Requirement** | **Description** |
| NFR-1 | **Usability** | The use of doctor-computer interaction devices in the operation room (OR) requires new modalities that support medical imaging manipulation while allowing doctors' hands to remain sterile, supporting their focus of attention, and providing fast response times. |
| NFR-2 | **Security** | This interface prevented the surgeon's focus shift and change of location while achieving a rapid intuitive reaction and easy interaction. |
| NFR-3 | **Reliability** | A vision-based hand gesture capture and recognition system that interprets in real-time the user's gestures for navigation and manipulation of images. |
| NFR-4 | **Performance** | Data from two usability tests provide insights and implications regarding human-computer interaction based on nonverbal conversational modalities. |