

## Project Design Phase- I Proposed Solution Template

Date	13 October 2022
TeamID	PNT2022TMID50884
ProjectName	Project-AGesture-basedToolforSterileBrowsingofRadiology Images
MaximumMarks	2Marks

### Proposed Solution Template:

Project team shall fill the following information in proposed solution template.

S.No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	The use of doctor-computer interaction devices in the operation room 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. Therefore, a gesture recognition system that interprets user's gestures for manipulation of medical images is proposed.
2.	Idea/Solution description	The data is to be collected by observing intuitive gestures in different lighting environments by video capture. The data is then sampled, cleaned and segmented and passed into a Convolutional Neural Network which then identifies the gestures. Following this, stacking is performed to give higher accuracy using algorithms such as SVMs and GMMs.
3.	Novelty/Uniqueness	The project proposes classification of hand images depicting a particular number for an operation, ex., 2 for zoom out. Instead, a temporal model, depicting real time gesture for an operation, ex. moving index finger left for left wipe, can be implemented to ease the interaction which thus forms a scope for uniqueness for the project.
4.	Social Impact/Customer Satisfaction	The ability to interact through patient medical images in a sterile format augments the attention of the surgeon towards surgery. The surgeon need not change location in order to browse images, but can do it remotely. Further, inconveniences caused in physical interaction, being possible mode for infection spread, is now solved.
5.	Business Model (Revenue Model)	The system when developed and tested for accuracy, can be given to various hospitals for practical testing for a particular period. They can later be persuaded to purchase once the test period is done. Further, to capitalise and market as a software product, direct sales to hospitals and surgeons must be made. Revenues sources included direct sales via demo and sales via purchase after testing.