

Ideation Phase

Define the Problem Statements

Date	23 September 2022
Team ID	PNT2022TMID07752
Project Name	A Gesture-based Tool for Sterile Browsing of Radiology Images
Maximum Marks	2 Marks

Customer Problem Statement:

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. This paper presents “Gestix,” a vision-based hand gesture capture and recognition system that interprets in real-time the user's gestures for navigation and manipulation of images in an electronic medical record (EMR) database. Navigation and other gestures are translated to commands based on their temporal trajectories, through video capture. “Gestix” was tested during a brain biopsy procedure. In the in vivo experiment, this interface prevented the surgeon's focus shift and change of location while achieving a rapid intuitive reaction and easy interaction. Data from two usability tests provide insights and implications regarding human-computer interaction based on nonverbal conversational modalities. The hand gesture control system “Gestix” developed by the authors helped the doctor to remain in place during the entire operation, without any need to move to the main control wall since all the commands were performed using hand gestures

Problem Statement (PS)	I am (Customer)	I'm trying to	But	Because	Which makes me feel
PS-1	A doctor	Review records during surgery	It can delay the procedure	The doctor is in middle of the operation	Helpless
PS-2	A doctor	Communicate with colleague	Focus can be missed	The doctor is in middle of the operation	Frustrated