Project Design Phase-1

ProposedSolutionTemplate

Date	13 October 2022
TeamID	PNT2022TMID49719
ProjectName	Project-AGesture-basedToolforSterileBrowsingofRadiology Images
MaximumMarks	2Marks

ProposedSolutionTemplate:

Projectteamshallfillthefollowinginformationinproposedsolutiontemplate.

S.No.	Parameter	Description
1.	ProblemStatement(Problemtobesolved)	The use of doctor-computer interaction devicesintheoperationroomrequiresnew modalities that support medical imagingmanipulationwhileallowingdoctors'hand storemainsterile, supporting their focus of attention, and providing fastresponse times. Therefore, a gesturerecognition system that interprets user'sgesturesformanipulationofmedical imagesis proposed.
2.	Idea/Solutiondescription	The data is to be collected by observingintuitive gestures in different lightingenvironments by video capture. The data isthen sampled, cleaned and segmented andpassed into a Convolutional Neural Networkwhich then identifies the gestures. Followingthis,stackingisperformedtogivehigher accuracyusingalgorithmssuchasSVMsandGMMs.
3.	Novelty/Uniqueness	The project proposes classification of hand images depicting aparticularnumberforanoperation,ex,.2forzoomout.Instead, a temporal model, depicting real time gesture for an operation, ex.movingindexfingerleftforleftswipe,canbeimplemented toease theinteractionwhichthusformsascopeforuniquenessfor theproject.
4.	SocialImpact/CustomerSatisfaction	Theabilitytointeractthroughpatientmedicalimagesinasterileformataugmentstheattentionofthesurgeontowardssurgery.Thesurgeon neednotchangelocationinordertobrowseimages,butcandoitremotely. Further,inconveniencescausedinphysicalinteraction,beingpossiblemodeforinfectionspread,isnowsolved.
5.	BusinessModel(RevenueModel)	Thesystemwhendevelopedandtestedforaccuracy,can begivento varioushospitalsforpracticaltestingforaparticularperiod.Theycanlaterbepersuadedtopurchaseoncethetest periodisdone.Further,tocapitaliseand

		marketitasasoftwareproduct,directsalestohospitalsandsurgeonsmustbemade.Revenuesourcesincludedirectsalesviademoandsalesviapurchaseaftertesting.
6.	ScalabilityoftheSolution	Numerous hospitals in the present date, follow only physical mode of interactionwithimagesduringsurgery.Buttheneed forsterilebrowsinginintactandvital.This explainsthatthemodelhasimmensescopetobescaledand distributedamongvarioussurgeonsAdditionally,themodelcanbeimprovisedtoperformmorefunctionsthaninteractions, such as automatic and consecutivefetching of related images, ex. If an image of shoulder bladeinspected,morelikelyhandwillalsobeinspected.

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