



LIFE VISION

Computer Vision in Healthcare

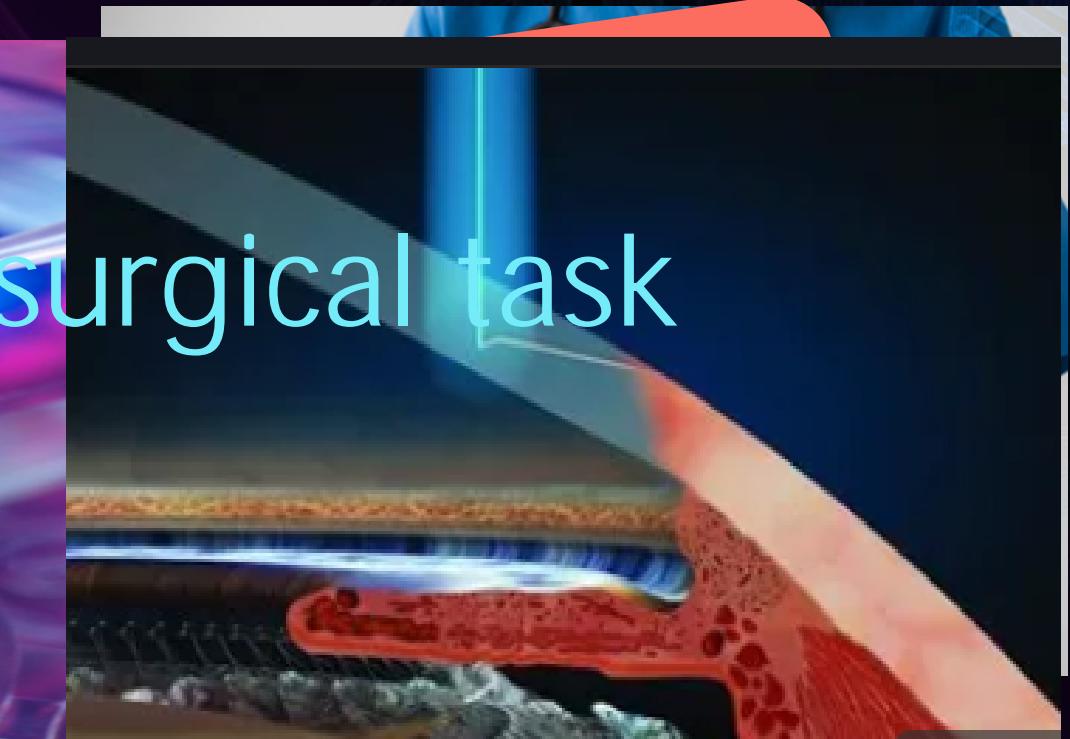
Review - I

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Problem Statement

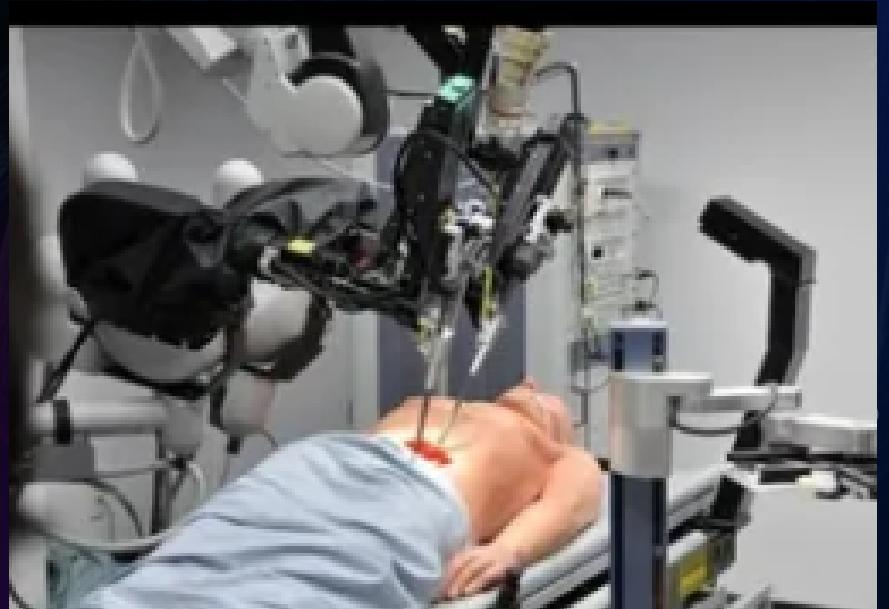
Blepharoplasty and blepharochalasis surgery



Problem Statement



Telesurgery



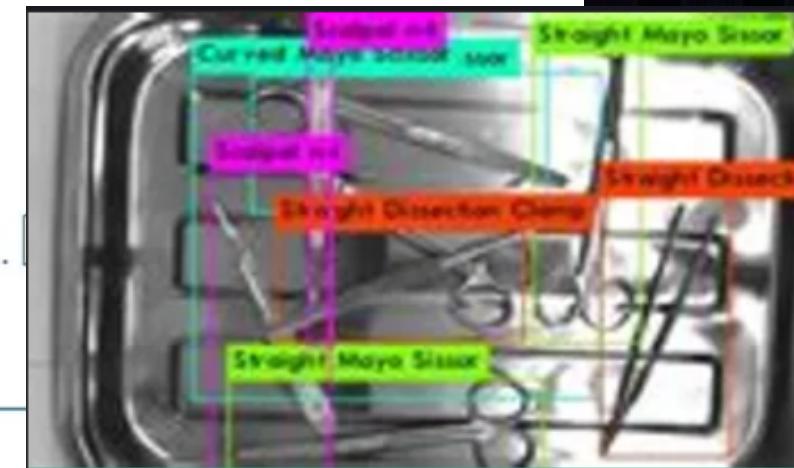
Objective

Embedding LifeVsion into Telesurgery



Proposed Work

- **3. Biopsi** **is** **based** **on** **deep** **learning** **techno**
logy.
webserver.





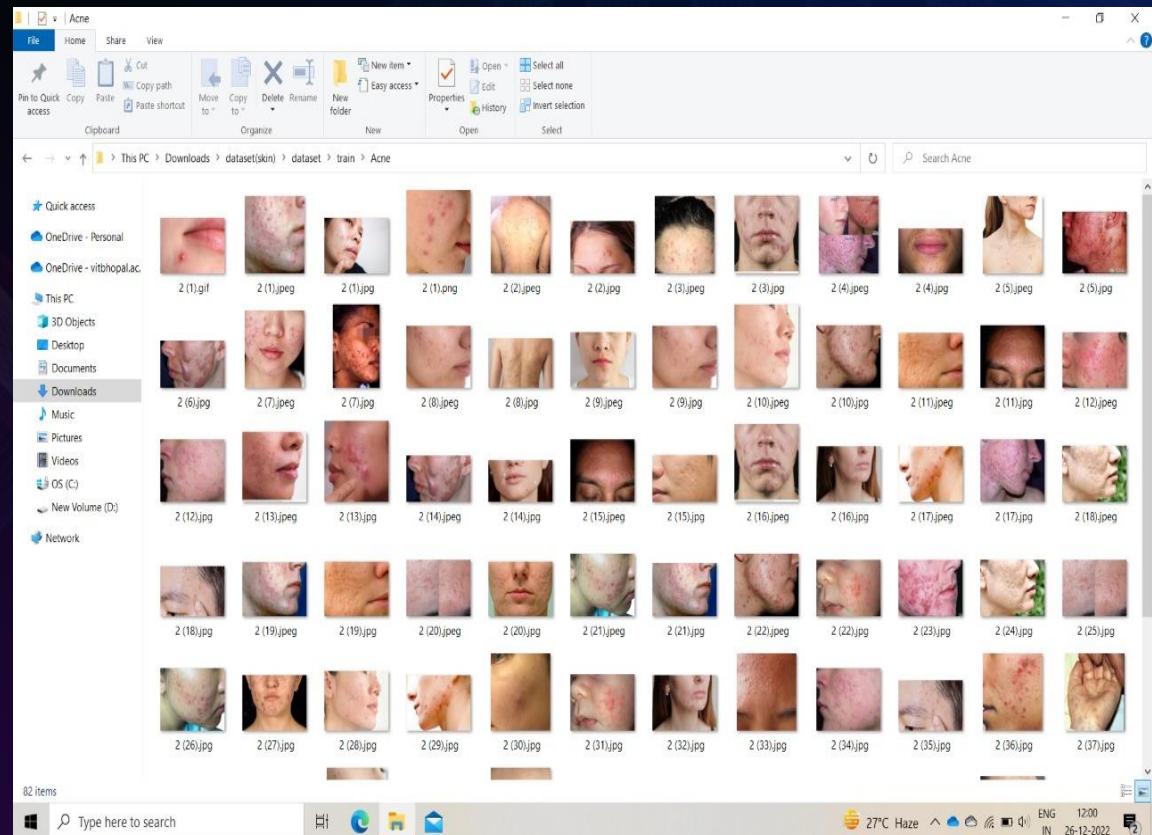
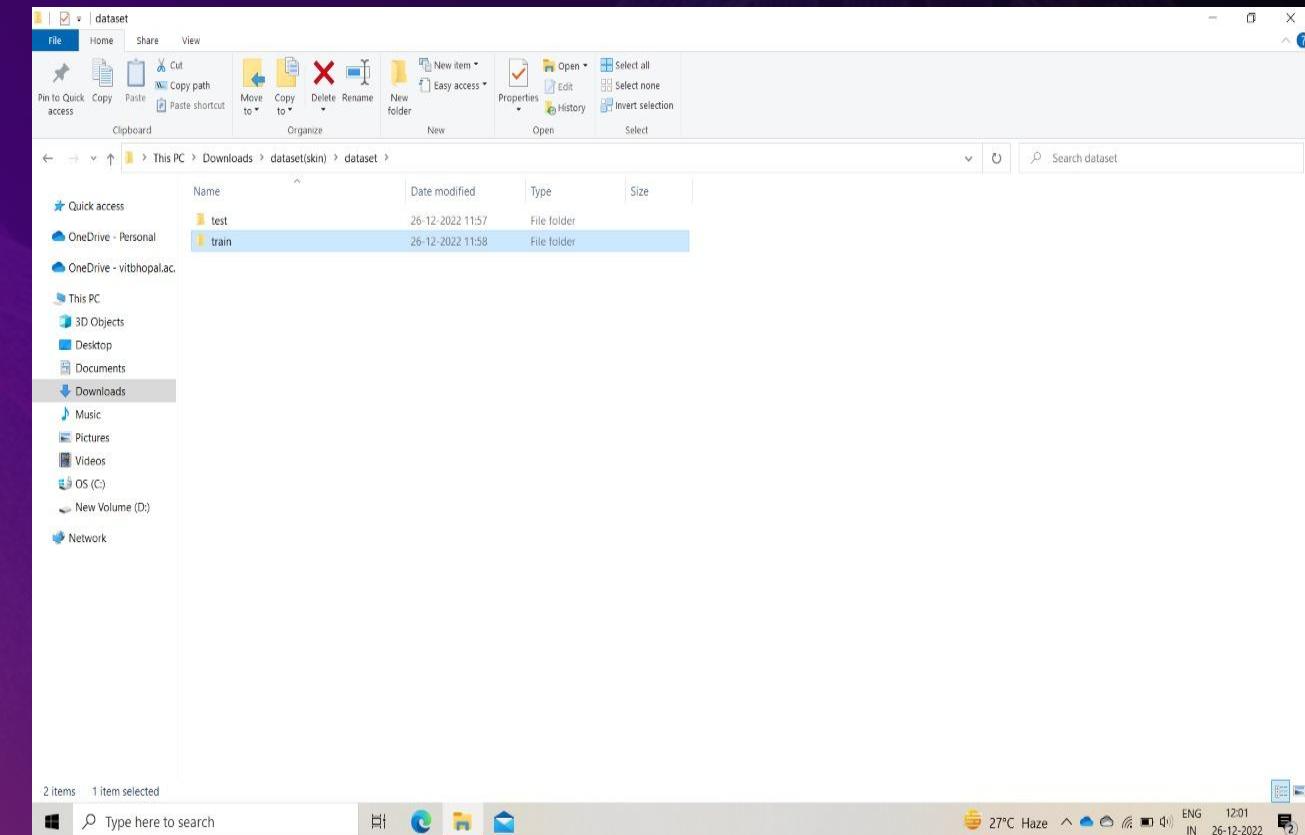
Stage 1:Implementation



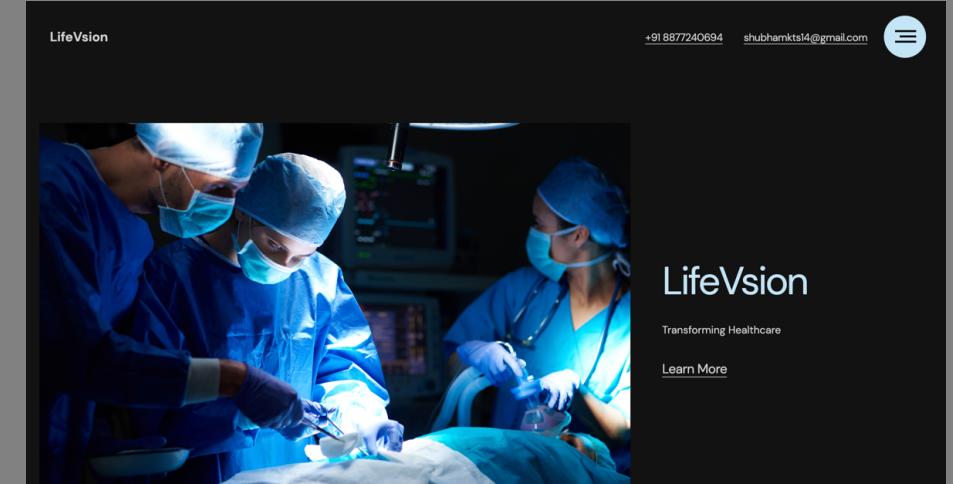
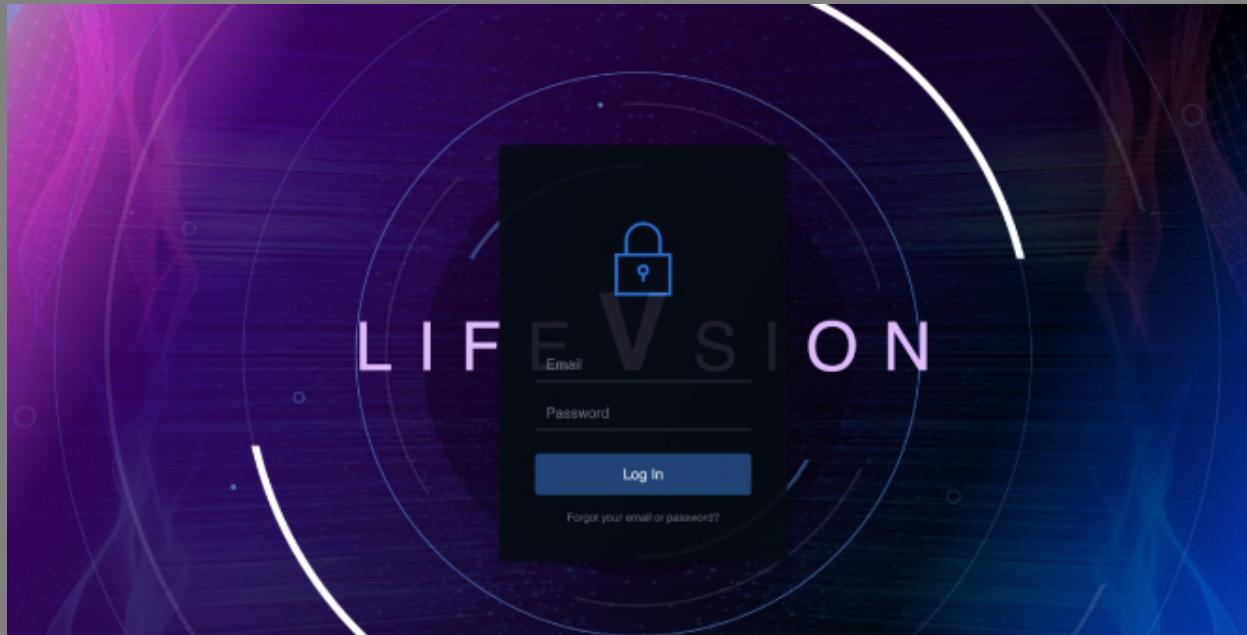
- A dataset is a collection of data chosen for training the machine learning model.
- Our dataset contains images of various brain tumors and surgical instrument which are collected from Kaggle & ImageNet .



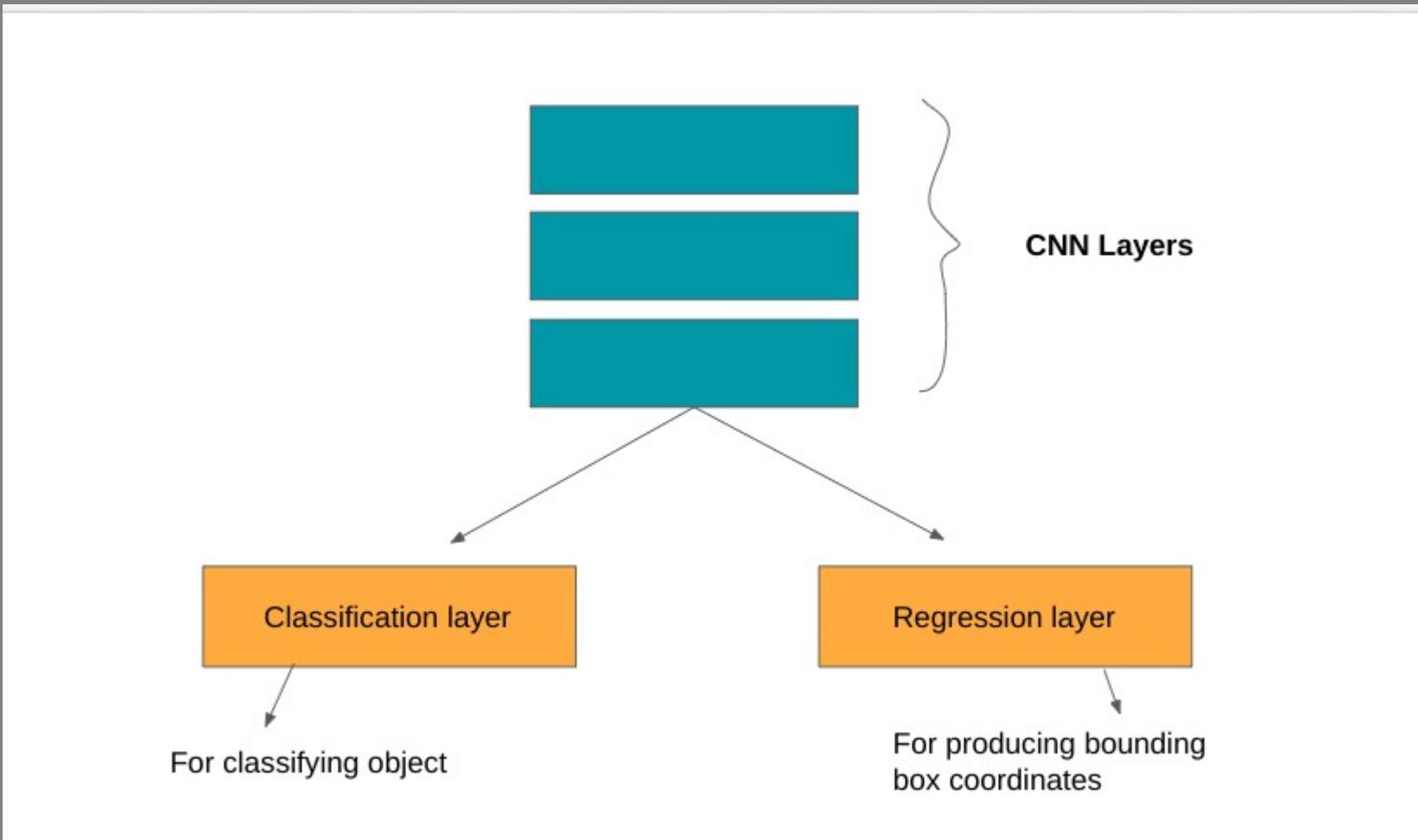
Stage-1 Output



Stage-1 Output



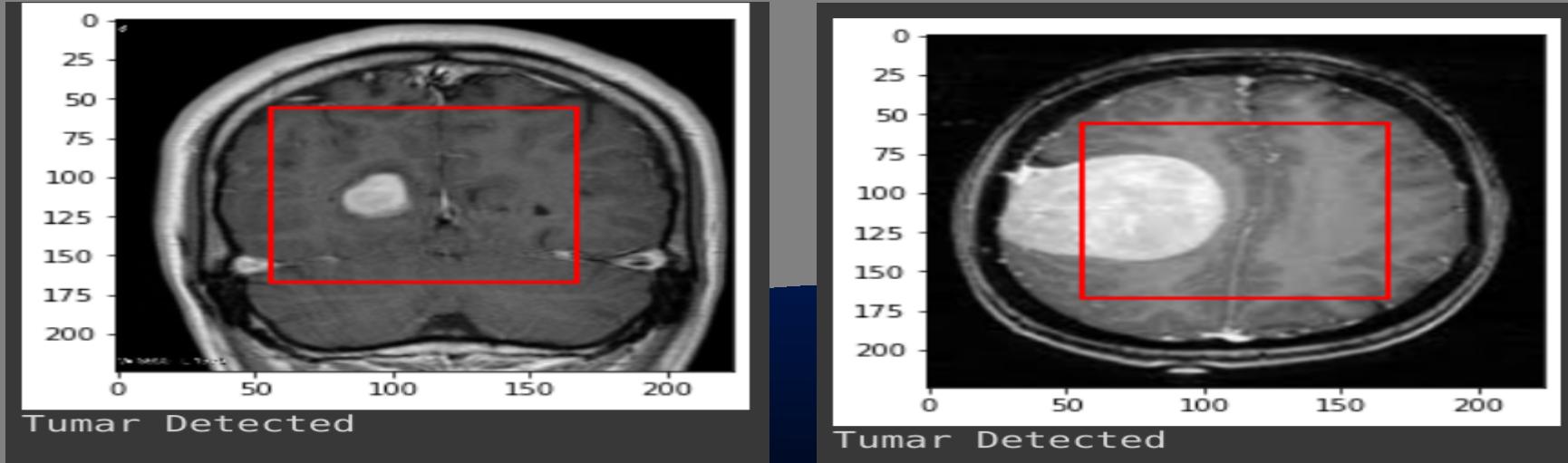
Model Architecture



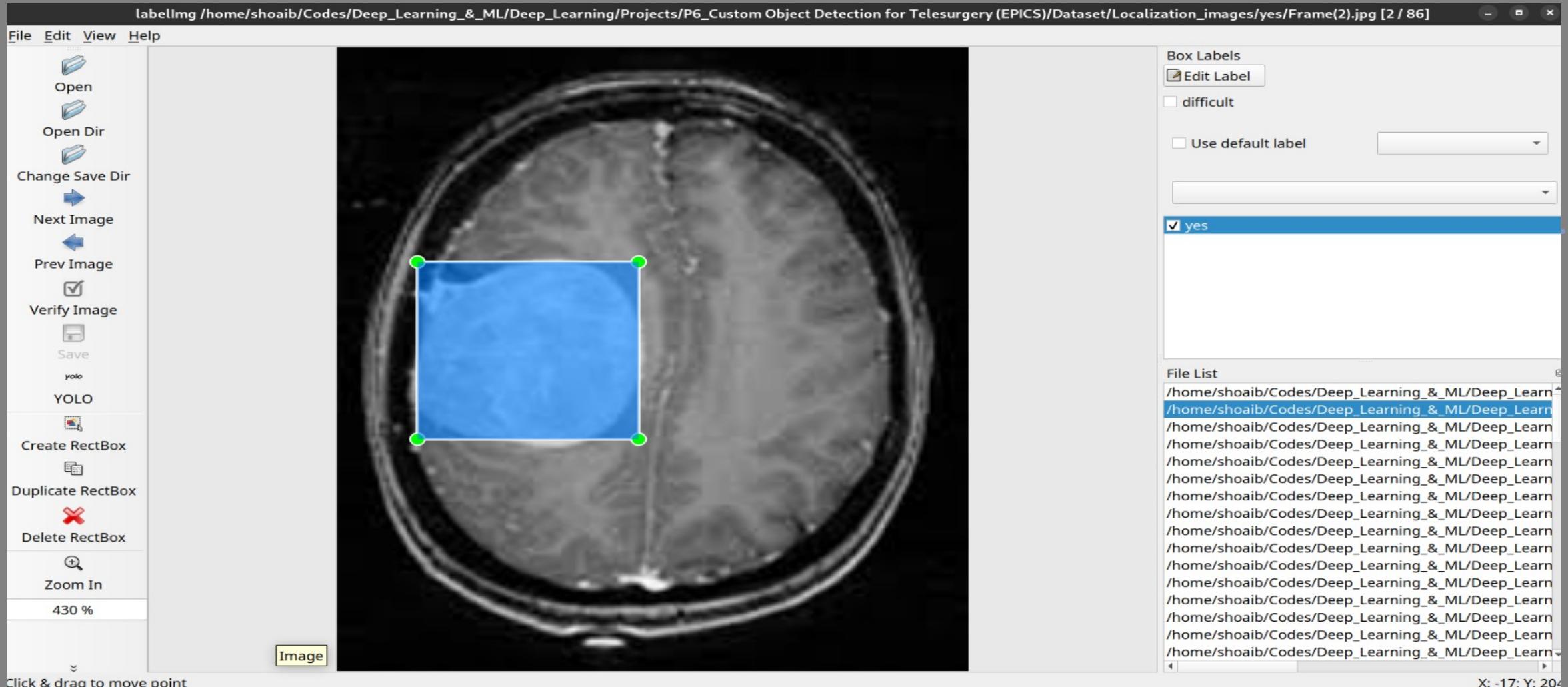
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Stage 2 Implementation

Approach	Method	Work	Accuracies	Drawbacks	Improvement
1	MobileNet v3 Large	Freezed MobileNet initial layers and all bbox layers	58%	-	
	MobileNet v3 Large	Freezed only bbox layers (to avoid information loss)	80%	-	
	MobileNet v3 Large	Minor fluctuation in batch size	79% - 83%	Accuracy of classification and bounding box	Minor improvement in classification
2	MobileNet v2	Freezed MobileNet initial layers and all bbox layers	49%	-	
	MobileNet v2	Freezed only bbox layers (to avoid information loss)	88.20%	Accuracy of classification and bounding	Better classification
	MobileNet v2	Minor fluctuation in batch size	76% - 83%	-	
3	Build custom Network	Freezed only bbox layers (to avoid information loss)	95%	Accuracy of bounding box is still the issue	Major improvement in Classification
4	Yolo-v4	Combined the dataset and trained over the weights	93%	Minor classification accuracy has been compromised	Realtime object detection

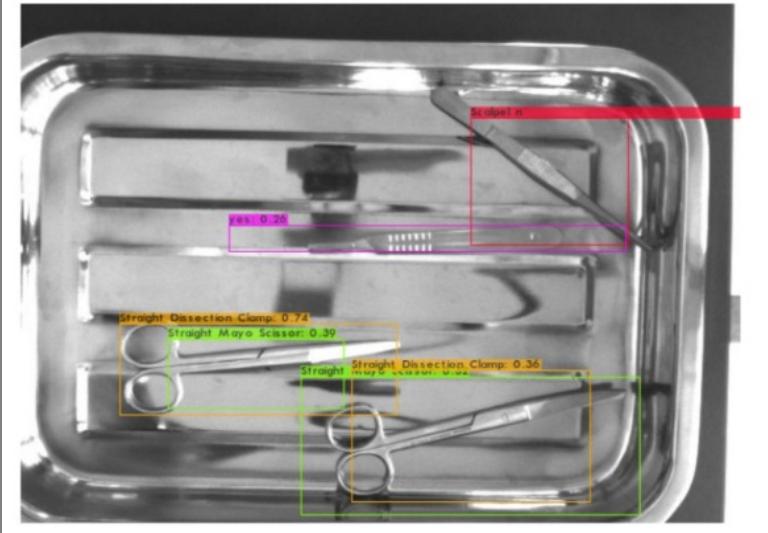


Data Annotation Task

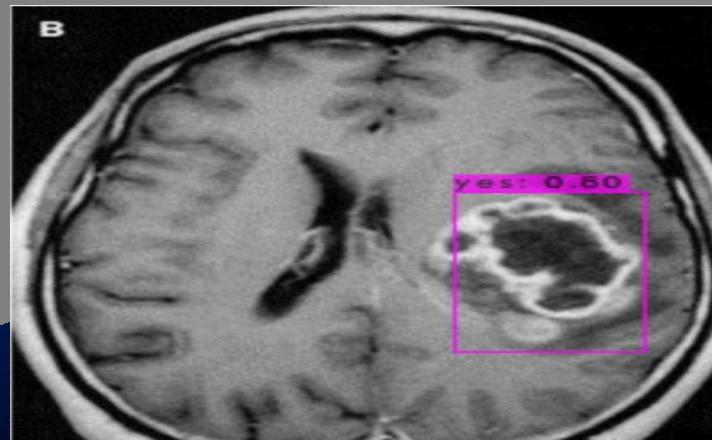
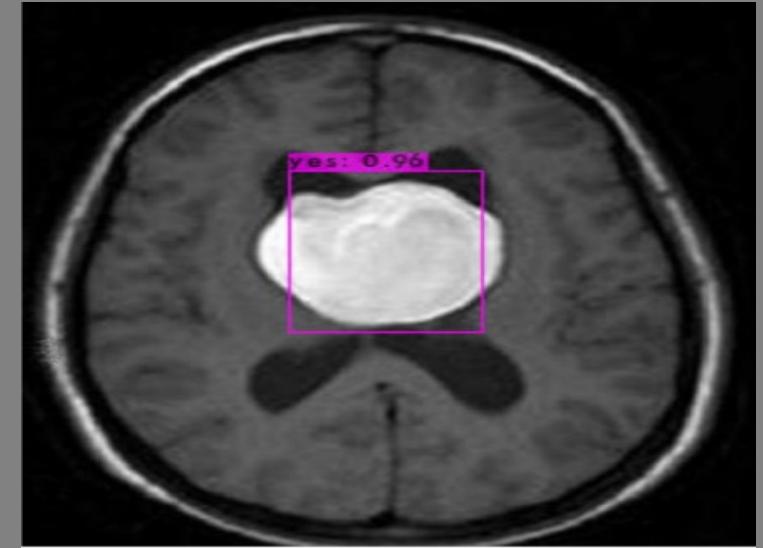
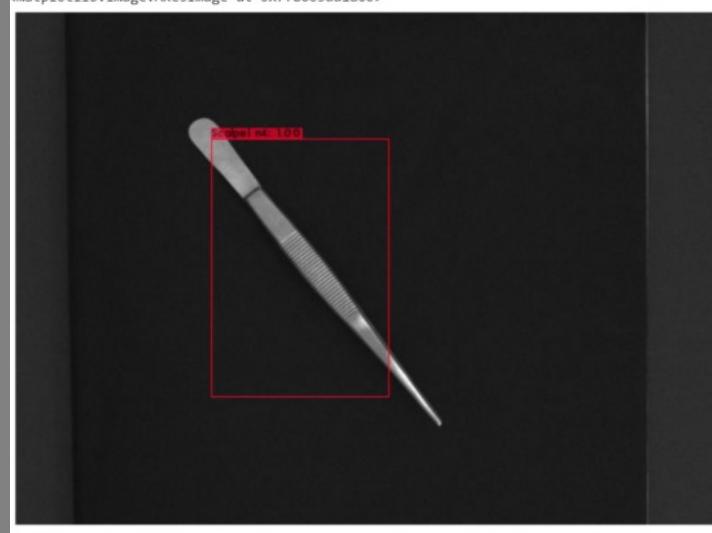


Stage-2 Output

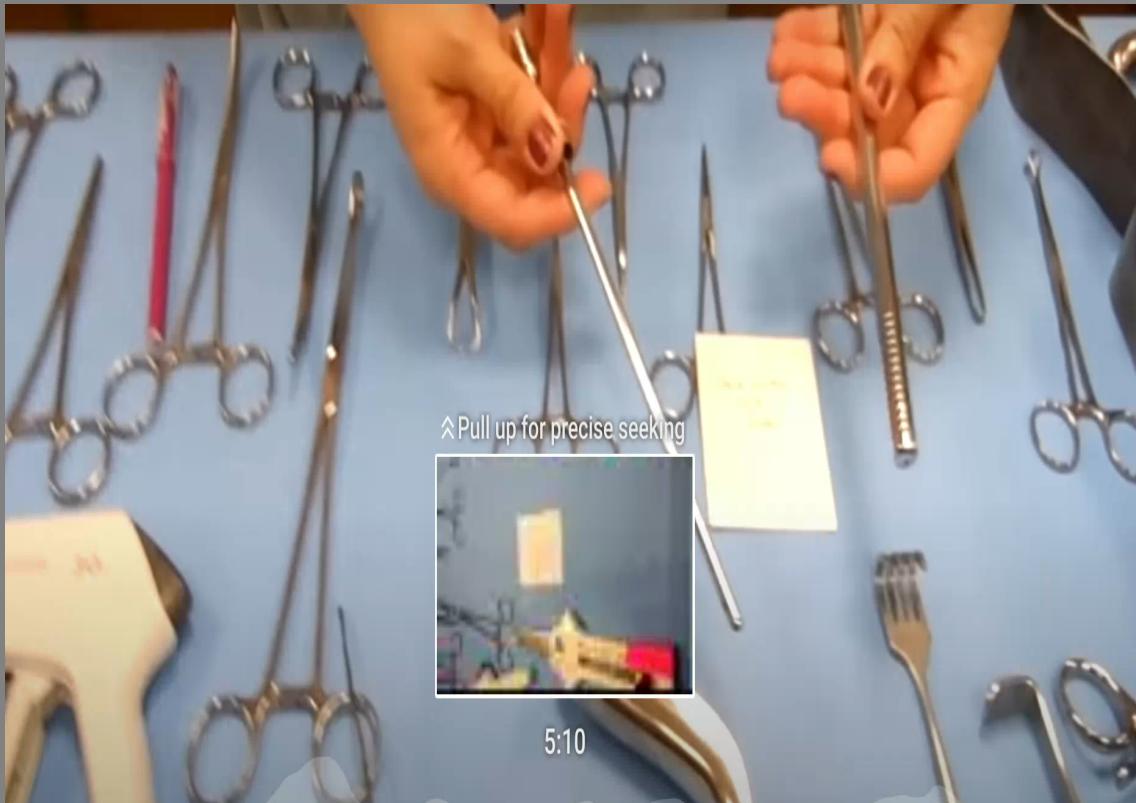
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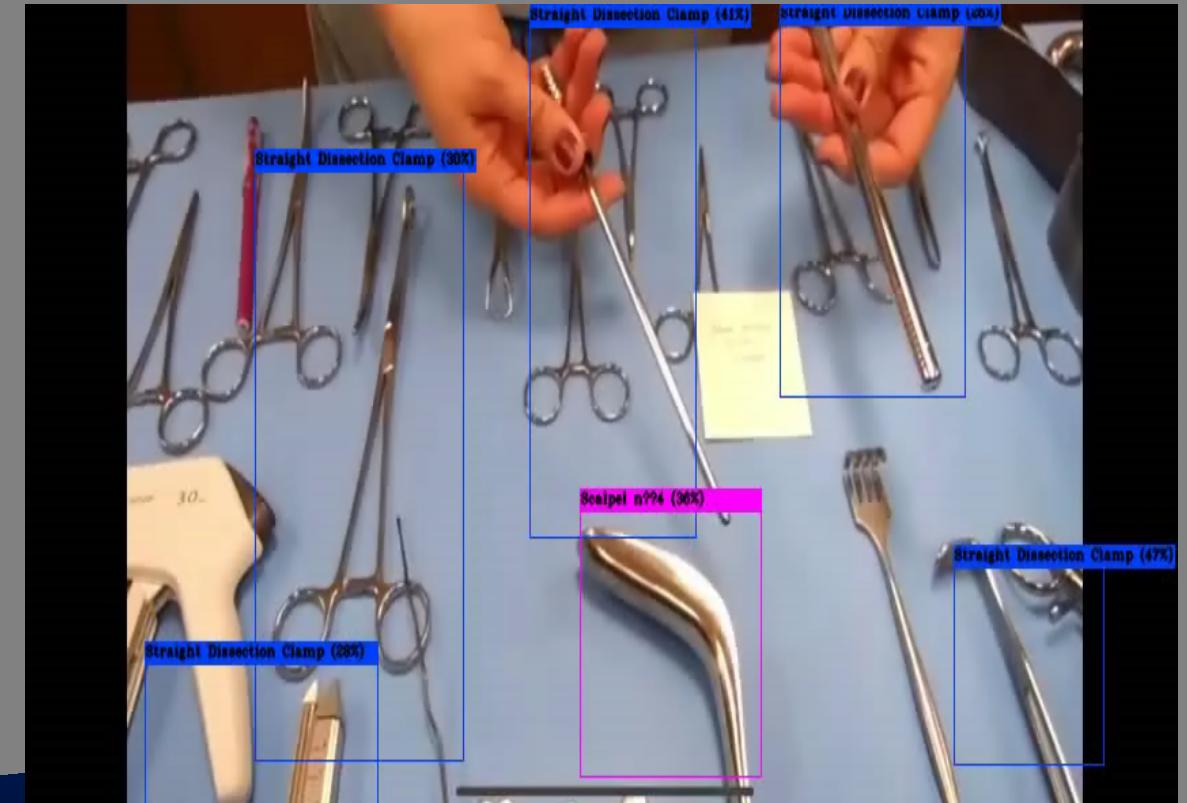
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Stage-2 Output

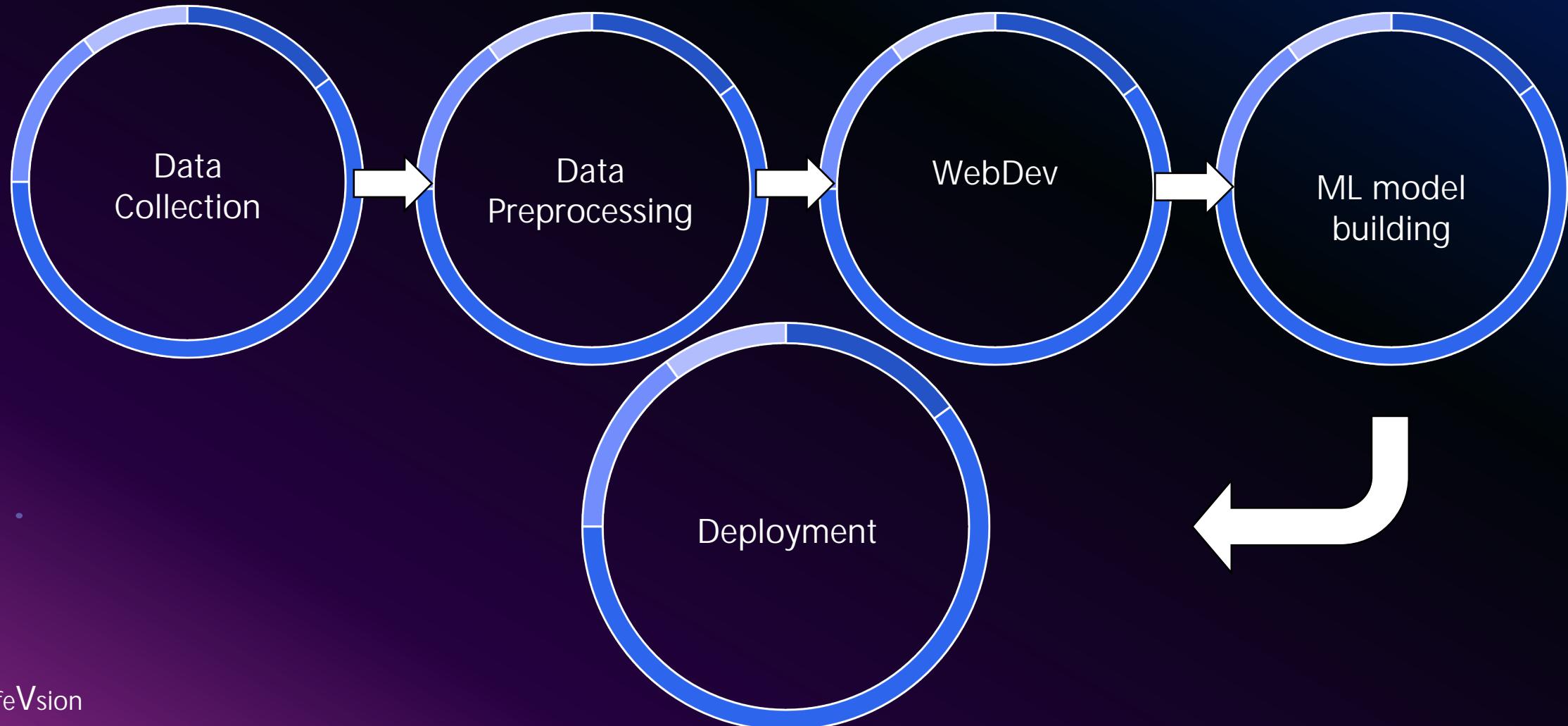


Input

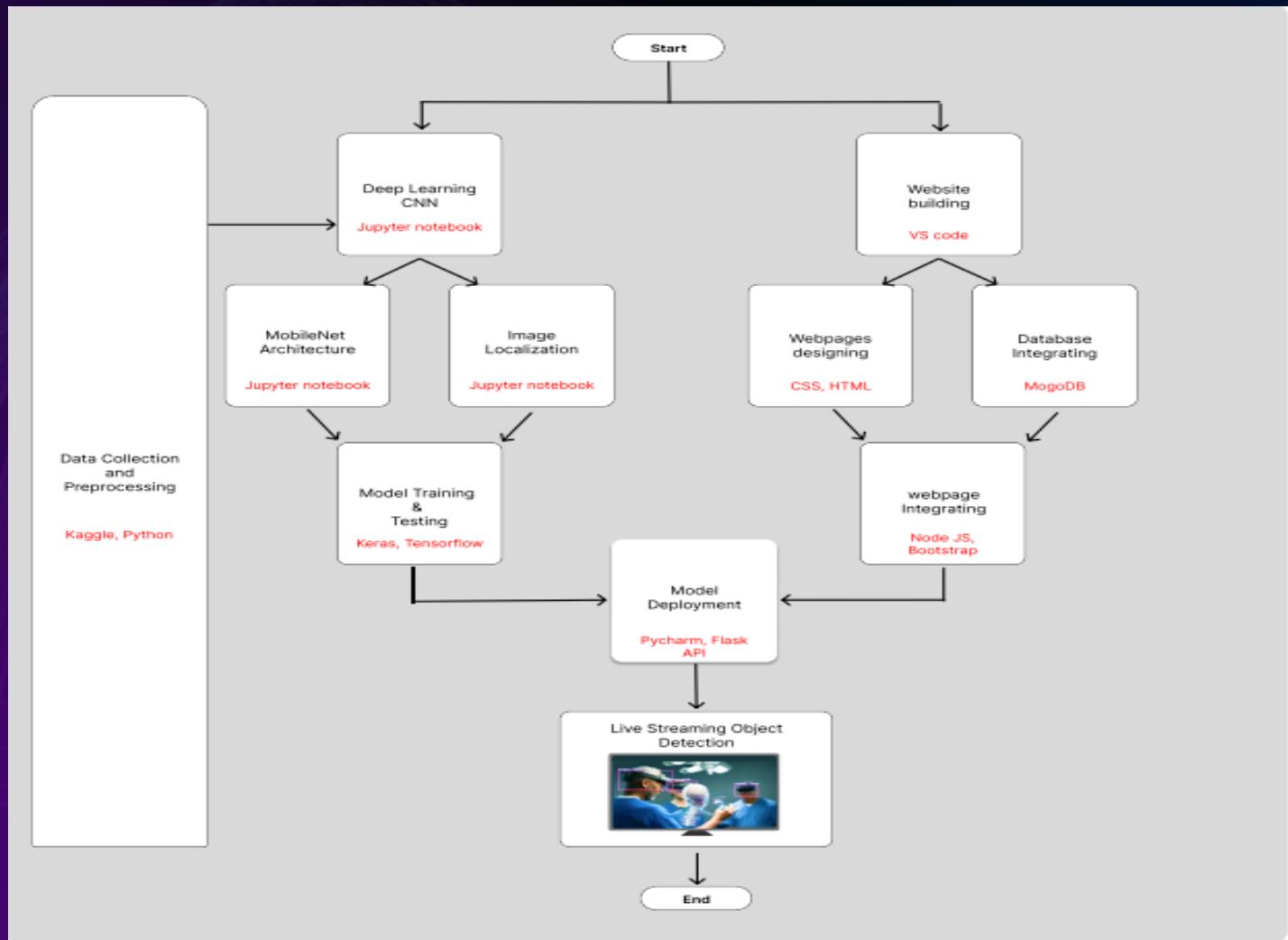


Output

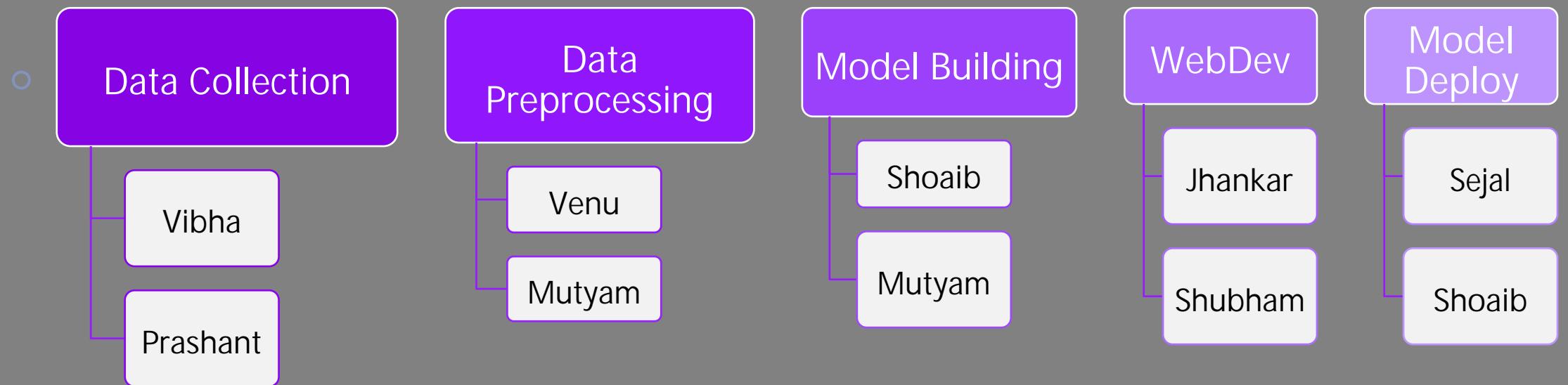
Complete Project Road Map



Architecture



Team Contribution



References

- Inspired by:
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1681689/>
- <https://www.news-medical.net/amp/health/What-is-Remote-SurgeryTelesurgery.aspx>
- https://www.researchgate.net/publication/360769774_Object_Detection_and_Distance_Measurement_in_Teleoperation
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Thank you

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