# Hand Gesture based Text Entry Interface – IMPRINT-2

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The objective is to propose a hand gesture detection system, which is integrated with an interface operated by hand gestures without any physical contact with the device. The system performs hand detection by means of a transformer (encoder-decoder) network, which receives the feature map from a backbone architecture and measures the classification scores of the hand gestures along with estimating the bounding box that encompasses the hand gesture.

❖ Achieves better recognition and bounding box regression results than the state-of-the-art methods on Ouhands and NUS datasets, despite the presence of background clutter, illumination variation and variation in shape and size of the hands.

❖ An interface capable of performing mathematical operations like addition, subtraction, multiplication, and division, operated by the hand gestures.
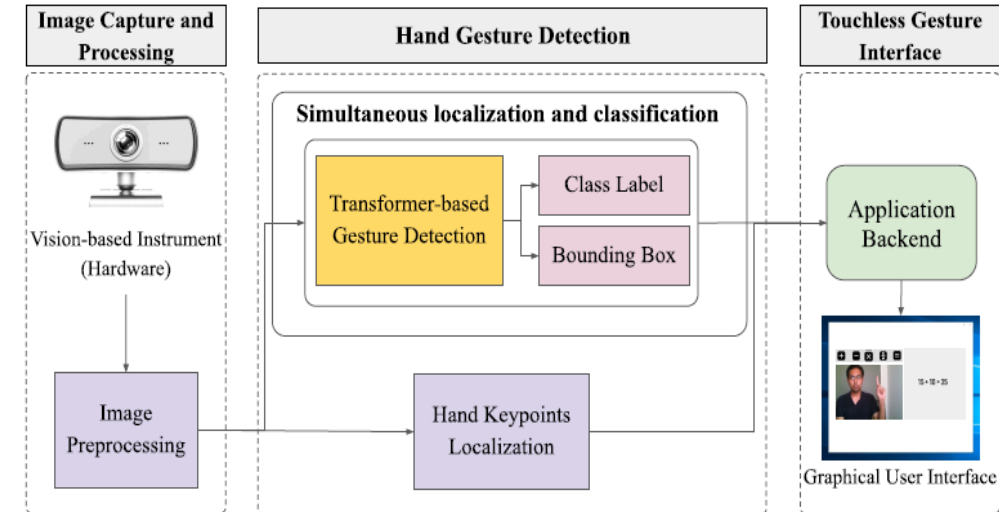
Papers	Objective	Dataset	Acc (%)	F-score (%)
Dadashzadeh et al.	Segmentation & Classification	OUHANDS	87.8	88.1
Bose et al. (two stage network)	Localization & Classification	NUS	-	97.98
Bose et al. (single stage network)	Localization & Classification	NUS	-	97.17
Aditya et al.	Classification	NUS	94.7	94.26
Pisarady et al.	Classification	NUS	94.36	-
Sharma et al.	Classification	NUS	96.62	-
Baseline	Localization & Classification	OUHANDS	83.25	50
Retinanet	Localization & Classification	OUHANDS	-	87
Faster R-CNN+CPF	Localization & Classification	NUS	-	95.11
Faster R-CNN	Localization & Classification	NUS	-	92.99
MS-FRCNN	Localization & Classification	NUS	-	87.32
MS-RFCN	Localization & Classification	NUS	-	76.42
Proposed Work	Localization & Classification	OUHANDS / NUS	89.6 / 100	89.9 / 100