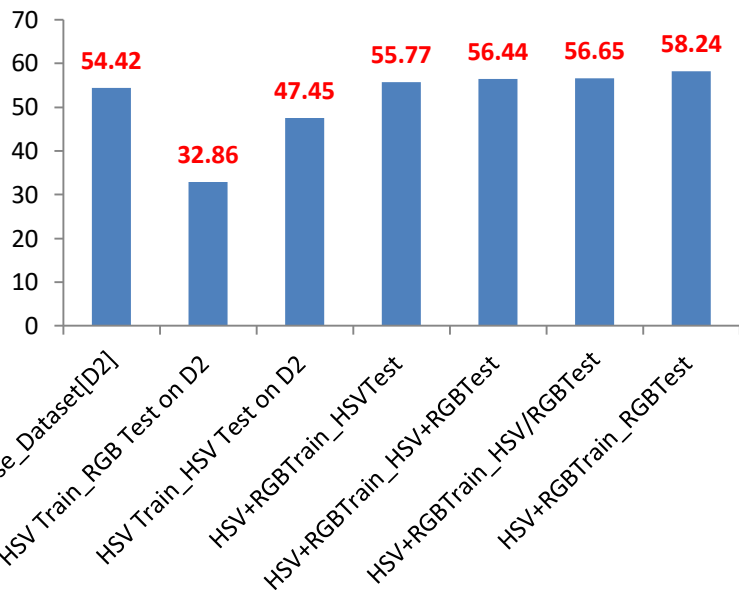


HSV Experiment Details

Mean Average Precision



Train-Test Workflow

Experiment	Train Set	Test Set
HSV Train_RGB Test on D2	HSV images	RGB images
HSV Train_HSV Test on D2	HSV images	HSV images
HSV+RGB Train_HSV Test	HSV + RGB images	HSV images
HSV+RGB Train_HSV + RGB Test	HSV + RGB images	Both HSV and RGB images
HSV+RGB Train_HSV/RGB Test	HSV + RGB images	Test set split into half, converted one half to HSV and the other half to RGB.
HSV+RGB Train_RGB Test	HSV + RGB images	RGB images

RGB to HSV Conversion

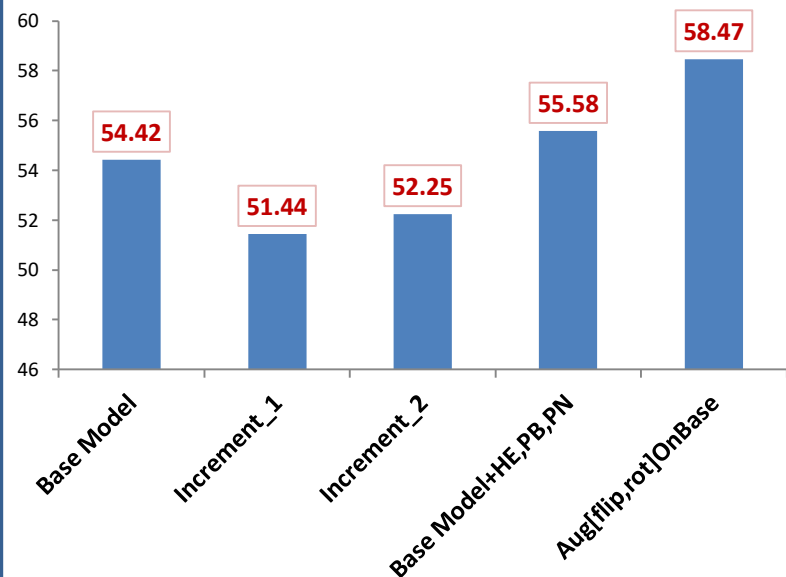
Library Used : OpenCV.

Conversion function : `cv2.COLOR_RGB2HSV()`

Experiment Mode : Converted RGB images to HSV and fed this converted images as input to the model.

YOLO Source Code : No modification made.

Mean Average Precision



Incremental Addition Process

- Segregation of 40 images each from original dataset.
- Re-annotation of the newly selected 40 images as per new annotation rules.
- Augment images in classes with no extra images available in original dataset[CL,SL].
- Add 40 images each to the classes in the train set.
- Keep the test set fixed.

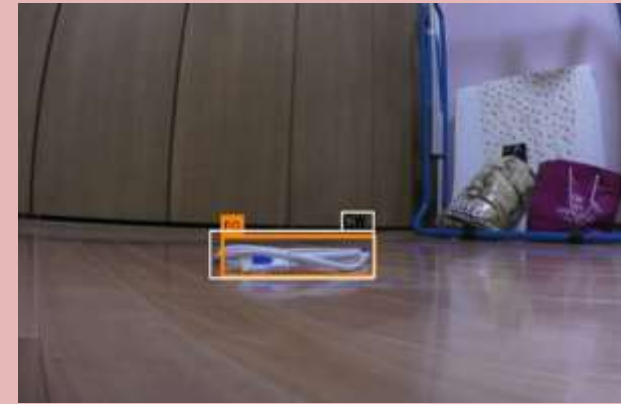
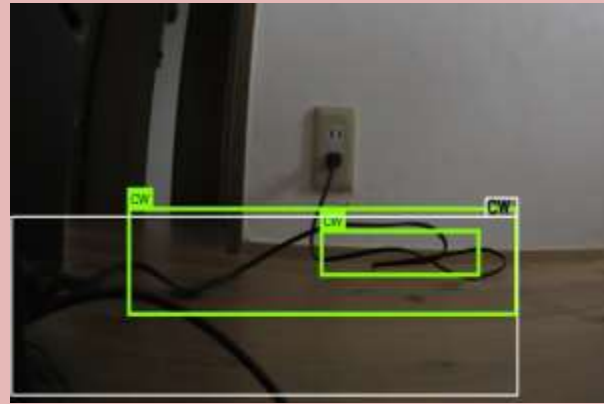
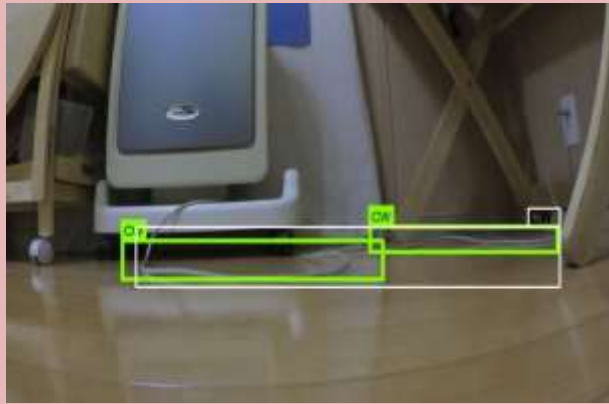
Train-Test Workflow

Experiment	Train Set	Test Set
Base Model [D2]	Reshuffled TSC images from families A,B,C.....	TSC Images from families X,Y,Z not included in train set.
Increment_1	Added 40 images each per class to D2 Train Set.	Same as D2 Test Set.[Fixed]
Increment_2	Added 40 images each per class to Increment_1 Train Set.	Same as D2 Test Set.[Fixed]
Base Model + HE,PB,PN	Added all HE[98],PB[18],PN[296] images available from original dataset each per class to D2 Train Set.	Same as D2 Test Set.[Fixed]
Augmentation [Flip & Rotation] on Base Model	Added augmentation flip and rotation to all the classes in D2 Train Set.	Same as D2 Test Set.[Fixed]

Incremental Addition Experiment metrics

	Base model		Increment_1		Increment_2		Base Model + HE,PB,PN		Augmentation [Flip, Rotation] On Base Model.	
	AP	Recall	AP	Recall	AP	Recall	AP	Recall	AP	Recall
Clothes	35.33	54.84	30.37	49.77	29.87 ↓	50.23	26.58	47.47	30.97	50.69
Slipper	55.95	59.42	47.29	52.17	52.05 ↓	56.52	50.51	57.25	59.44	63.77
Floor mat	86.76	87.50	89.03	89.17	89.17 ↑	89.17	83.74	84.17	88.33	88.33
Electronic Goods	81.90	83.49	81.68	84.40	81.99 ↑	82.57	81.25	82.57	78.10	82.57
Papersheet	81.38	82.08	78.15	80.19	82.73 ↑	83.02	82.51	83.96	86.35	87.74
Cable wire	30.31	48.22	29.85	49.24	26.58 ↓	48.73	33.98	53.30	36.71	53.30
Fan Leg	79.14	84.52	79	84.52	81.30 ↑	85.12	74.29	81.55	82.01	85.12
Hair Elastic	30.83	39.68	26.49	37.30	27.81	45.27	38.86 ↑	46.83	35.66	46.83
Pen/pencil	31.38	44.26	26.89	40.16	24.33	35.25	50.44 ↑	62.30	51.78	63.93
Plastic bag	31.08	38.10	25.68	32.54	28.68	34.92	33.64 ↑	36.51	35.30	39.68
mAP & Avg Recall	54.42	62.21	51.44	59.95	52.25	61.08	55.58	63.59	58.47	66.12

Prediction Analysis



Multiple Detections:

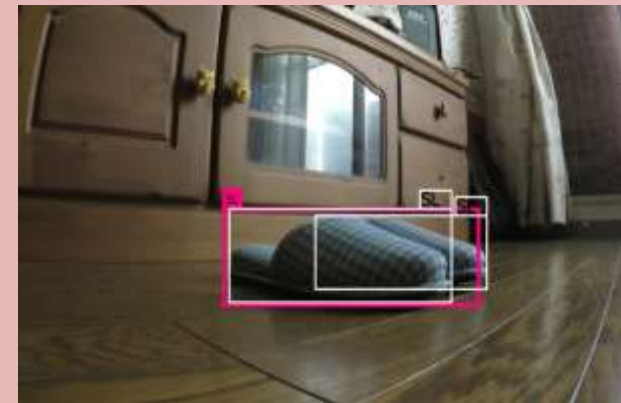
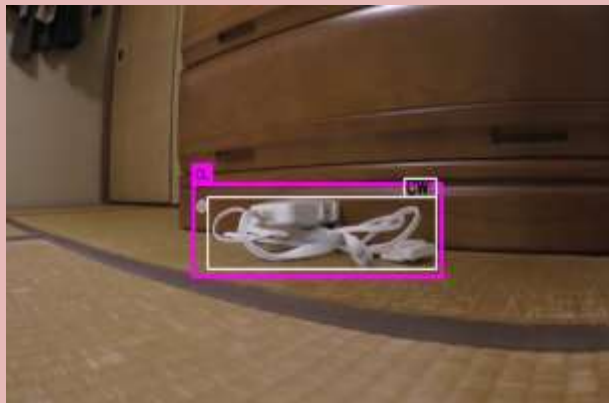
One bounding box each for each alignment of CW.

Multiple Detections:

One bounding box each for each alignment of CW.

False Detection:

CW is predicted as EG multiple times by the model.



False Detection:

CW [especially white color wire] is predicted as CL multiple times by the model.

Missed Prediction:

Multiple missed predictions for white CW.

Missed Prediction:

Multiple missed predictions for double slippers taken from side angle of view.