**Drowning Detection Using Yolo V5**

**ICRL-1001-22**

# **Introduction**

The aim of this project is to detect the drowning person in swimming area and alarm the authority for timely rescue.

# **Dataset**

Lifeguard Rescue dataset was used for the drowning detection project. Lifeguard dataset was collected from YouTube that was basically based on the recorded video dataset of swimming pool. The details of the used dataset are following:

* Lifeguard Dataset (YouTube)
* Swimming Pool recorded videos
* Video Length: 1-2 minutes

# **Preprocessing**

The preprocessing steps of the proposed project are following:

* Extract Image Frames from Videos
* Annotate the Extracted Image Frame
* Annotation Criteria
  + Drowning (If Object Body is in Water up to Neck)
  + Not Drowning (If Object Body is in Water below the Neck)

# **Model Training**

For the drowning detection during the swimming, Yolo V5 model was trained with the annotated images. The details of the model training are following:

* Use 250 Annotated Images

# **Results**

* Use 30 Annotated Samples for Evaluation
* Calculate Mean Absolute Error (MAE)
* Got 2.3567 value of MAE for validation samples

# **AUTHOR CONTRIBUTIONS**

Zeeshan Khan conceived the original idea. Hafiz Abdul Rehman developed the theory and performed the computations. Hafiz Abdul Rehman verified the analytical methods. Muhammad Saad optimize the model for deployment. All authors discussed the results and contributed to the final report.