

CLRI22004 - Onsite Generation of Gauze Images for AI Surgical Management Applications

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GAUZE-IAN ELIMINATION

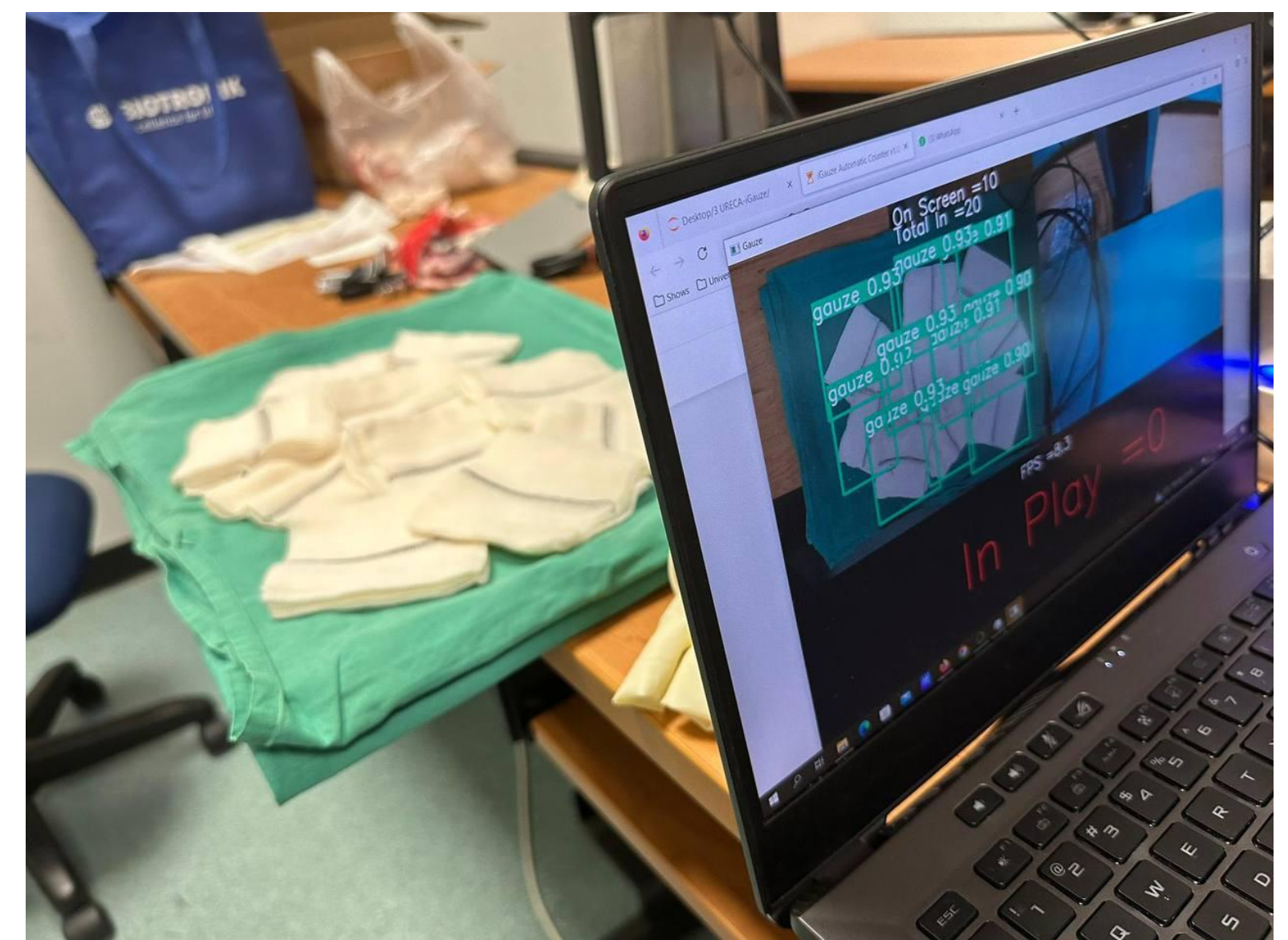


Background

When performing surgeries, doctors often need to use medical gauze to stop bleeding at surgery sites.

Motivation

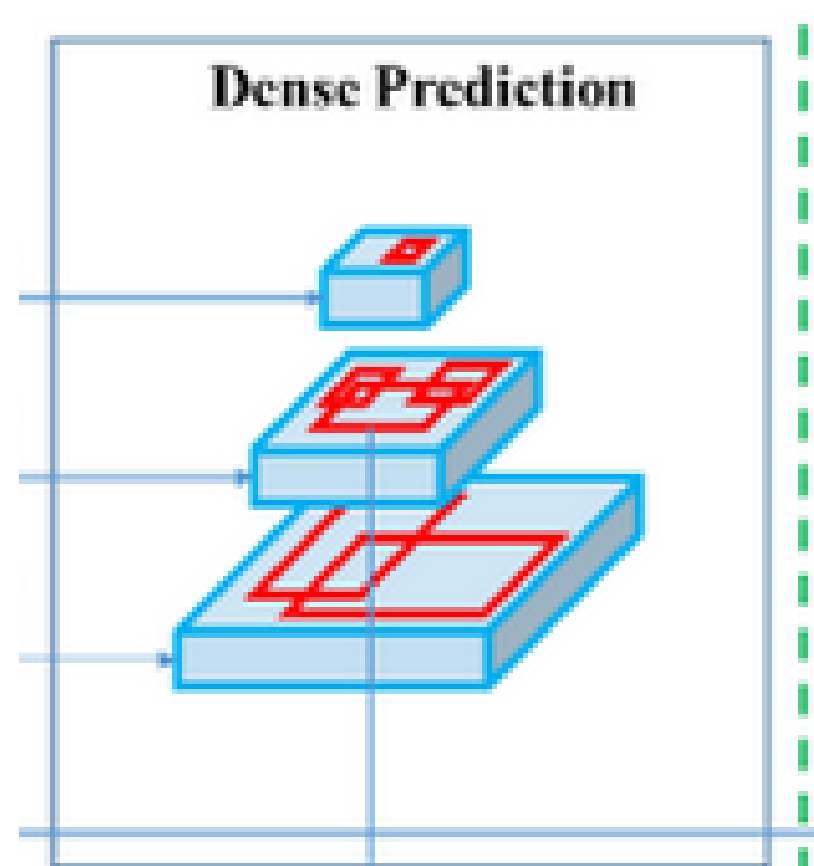
Sometimes, doctors forget to remove the gauze from the patient's body, so it stays inside and may cause pain, abscess formation or septic shock, which is called *Gossypiboma*. Currently, the only way to prevent this is to manually count the number of gauzes used, which could be time-consuming.



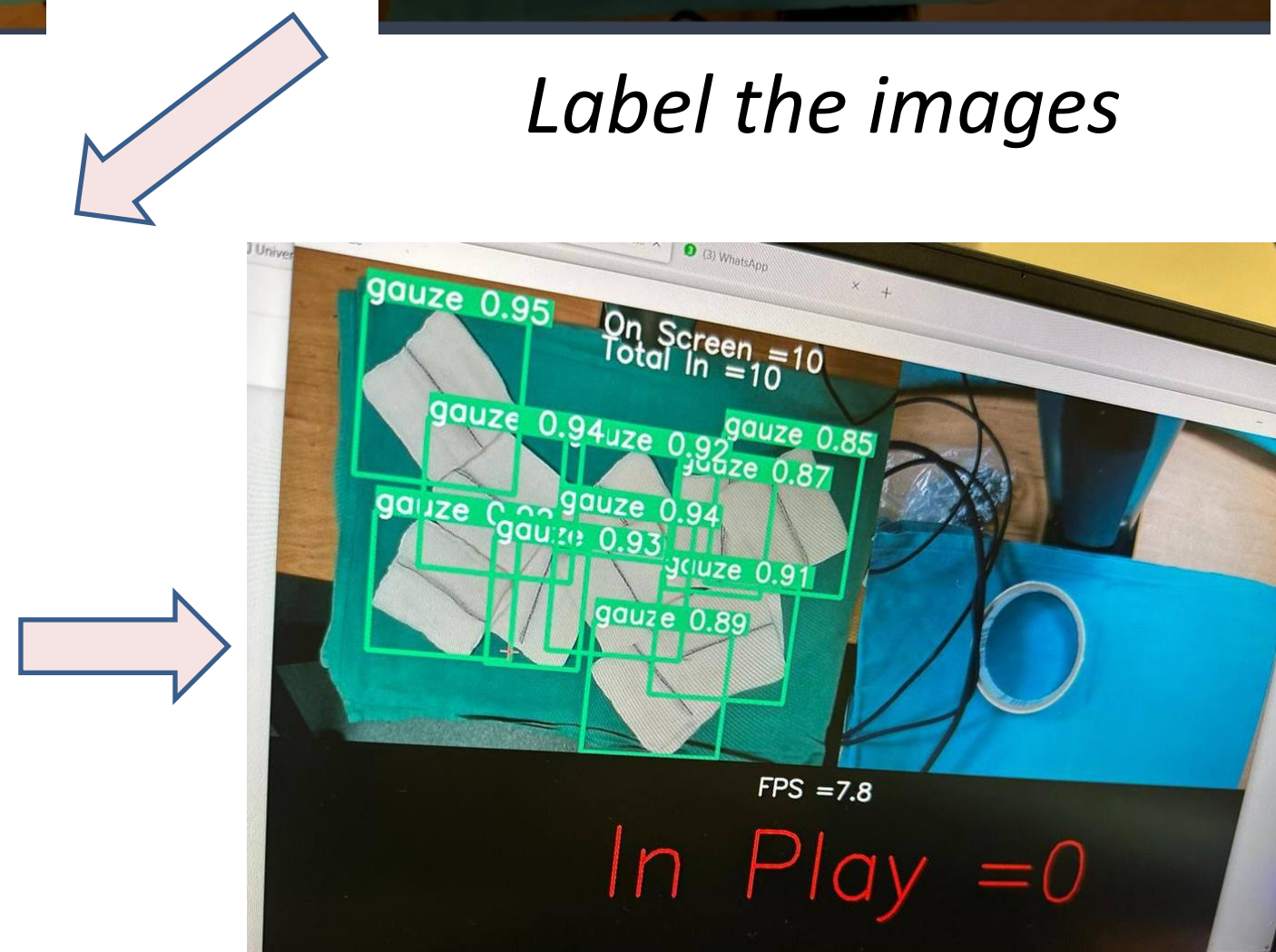
Collect gauze images



Label the images



Train YOLOv5 model



Gauzes now detected!

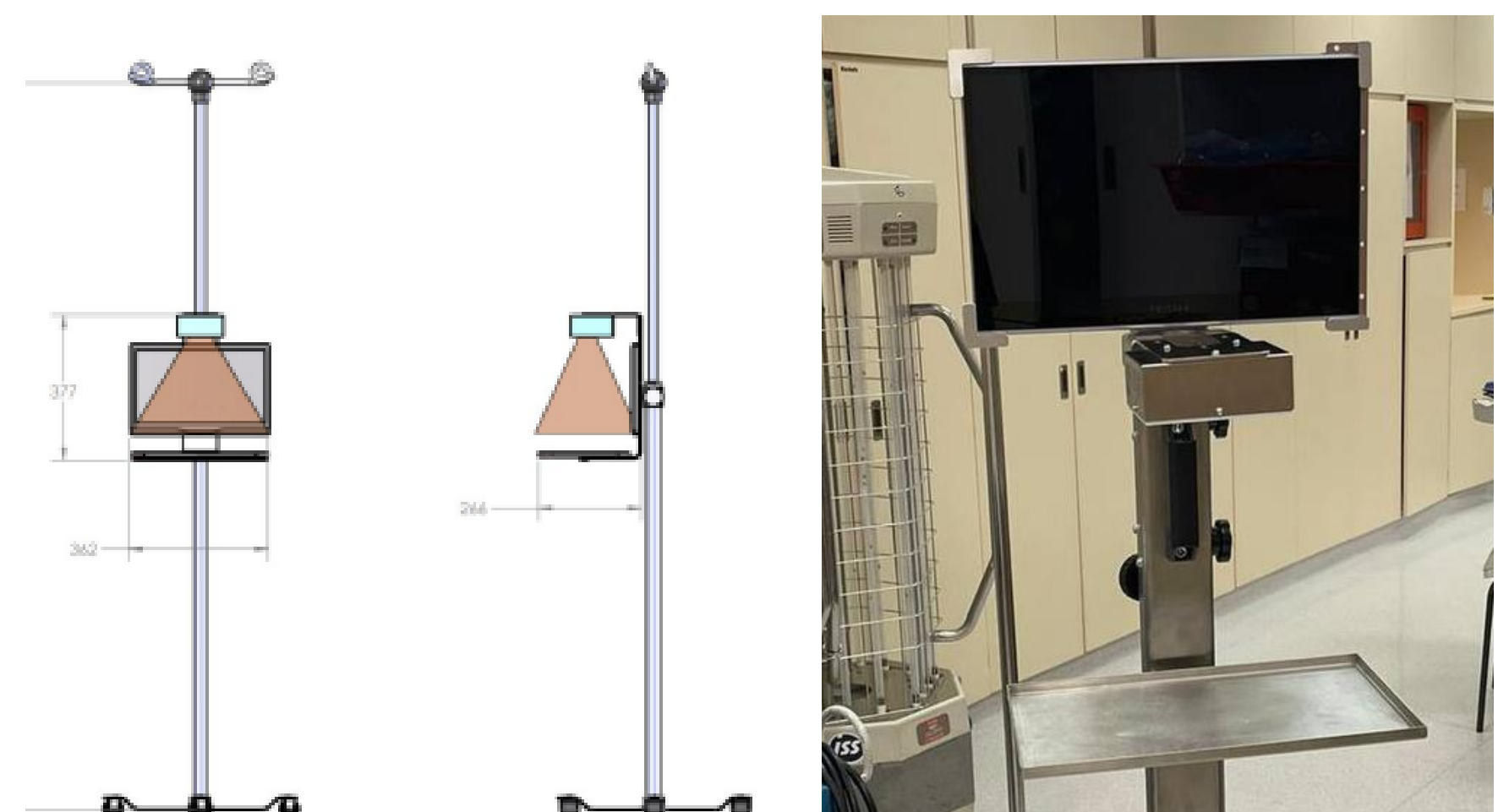
SOLUTION: Count the guazes using AI!

An object detection model can be trained using a labelled data set of guaze images. We then use a model called YOLOv5 which uses neural networks for training. We use an IN tray and an OUT tray on a drip stand, to compare the gauze counts to make sure that they match.

Discussion and conclusion

While preliminary versions of the system detect gauzes with good accuracy, further improvement in precision is required before being deployed in clinical settings.

Thus, future work in this project focuses on larger datasets with more precise object detection models.



Model and prototype of system on drip stand