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A Versatile Application for Visual Simultaneous Localization and Mapping with Object Detection

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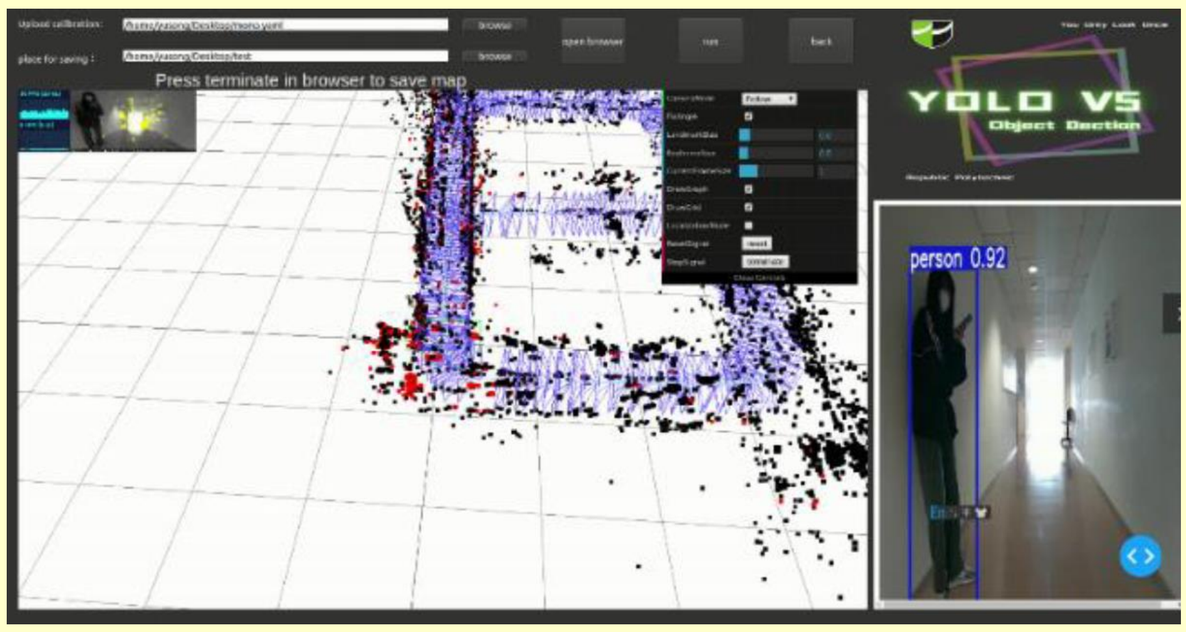
Proposed GUI for combining VSLAM with Object Detection



Implemented GUI for Real-time application of performing mapping while performing object detection

The proposed idea is motivated due to the fact that Natural Disasters are always a threat and it is important to focus on applications that aid with the issue. To narrow down the problem to a specific issue, it is easily notable the response time between the first call for help and the time for the first responder to reach and find the people in need of help is very crucial. In intense situations it is to reduce the time between discovering and locating the people trapped after a disaster as accurately as possible, hence the proposed idea instead of utilizing the detection and location of victim separately, it runs both vSLAM (for location) and identification of people as a single main tree complimenting each other instead of branching them out.

Summary

A versatile application is developed integrating Visual-SLAM with object detection models. A simplistic approach of utilization of sub-process to implement a real-time parallel run of object detector and Visual-SLAM, the application could be potentially used to help in many of the un-foreseen situations like discovering trapped individuals, firefighting, rescuing missions and with the application of robotics, there may even be end-less possibilities for this framework. Experimental results showed that the proposed system is effective in both detect the object and perform localization of a local body while generating a real-time generated map of an unknown environment.