MODELING ABANDONED OBJECT DETECTION AND RECOGNITION IN REAL-TIME SURVEILLANCE

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Declaration

I declare that this thesis is our own work and has not been submitted in any form for another degree or diploma at any university or other institution of tertiary education. Information derived from the published or unpublished work of others has been acknowledged in the text and a list of references is given.

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Name of the Student Signature of Student

Date ……

Supervised by

Mr S.C. Premaratne

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Date ……..……

Dedication

This research is dedicated to all the Military and Civil Staff in the Information Technology Section and rest of the Military and Non-Military staff of the Defence Services Command and Staff College (DSCSC) who supported me to obtain the requisite data repositories to conduct this research**.**

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Abstract

This research mainly focuses on building models using the latest tools which are using to detect and recognize abandoned objects in real-time Surveillance. There are number of experiments are occurring up to date in different scenarios and there are lots of tools have developed to improve the capacity of detection and recognition of abandoned objects. Further, identifying of most reliable, practical and efficient tools to implement the said process in different circumstances will immensely benefited in various aspects of the requirement of any organization.

Instead of old manual outdated systems, use of latest accurate and efficient systems will save money, time and improve the safety. Therefore, research will mostly focus three tools identified by thorough reading of the capacity and capabilities. There the use of deep learning techniques and most reliable and efficient datasets to evaluate the experiment for better solutions and findings will directly involve during the future decision-making process. Then, the **Faster RCNN (Faster Region Convolutional Neural Network), YOLO V3 (You Only Look Once Version 3) and Single Shot multibox Detector (SSD)** were tested. There researcher selected three video samples and checked the accuracy for each video clip separately by those models individually then final results illustrated that the maxim accuracy given by the YOLO-V, Second position taken by the SSD then third place taken by the Faster RCNN.

Further, after determining the accuracy by comparing the three models identified, the results can be used for further deep learning to make the process more efficient. This will immensely benefit number of fields and subjects which are interested in object detection and recognition during real time surveillance in the future.

Keywords: Deep Learning, Datasets, Faster Region Convolutional Neural Network (Faster RCNN), YOLO V3 (You Only Look Once Version 3), Single Shot multibox Detector (SSD)

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