2022 Intel Cup Undergraduate Electronic Design Contest – Embedded System Design Invitational Contest
Project Introduction

University	Universidade Federal de Pernambuco		
Faculty Mentor	Edna Natividade da Silva Barros		
Team Member	Rafael de Labio	Gabriel Schneider	Mateus Soares
Subject	**EYES OF THE RIVER: OBJECT RECOGNITION ON THE EDGE TO MAP GARBAGE FOCI ALONG RIVER WATER**		
Brief Introduction (Within 250 words)	Water is a primordial substance for the existence of life on earth: plants, animals and human beings depend on it to survive and thrive. Rivers are a particularly notable source of water for their positive influence on the lives of the local communities but also their influence on a global scope, since they are directly linked to the oceans, and, thus, their health also affects the health of the oceans. One of the biggests sources of river degradation is pollution with plastic and other types of man-made materials, such as metal cans and food packaging. The first step for caring for a rivers' well-being, hence, is understanding where trash accumulates so that cleaning can take efficient action. Mapping garbage foci however, can be a challenging task to be done manually by humans on big rivers, and, thus, a solution that helps automate this work could lead to a better efficiency of cleaning efforts. In this report, we describe a system that utilizes artificial intelligence to perform object detection and help map garbage location. We consider two different machine learning models and two different hardware architectures to base our object detection module on, and we test and analyze their results in order to find the best suited solution for application on the edge.		

1. Please fill the blanks with Times New Roman font, size 12, and single-spaced.
2. There should be only one faculty mentor.
3. Faculty mentor and team members should be the same as that on the registration form.
4. Subject should be the same as that on the final report.