Design 2 – A1

Dr. Alexandro Castellanos

11 January 2023

Project Name: Video Analytics at the Edge

Members: Luke Barber, Mikel Holmquist, Shawn Sheng

Advisor: Yasin Yilmaz

Description:

This design effort aims to demonstrate video analytics with edge computing techniques. “The Edge” defines effective video analytic methods, such as machine-learning based object detection, performed in the proximity of the optical instrument. Unlike the traditional approach, edge computing reduces the bandwidth requirement between the sensor and the central computer (known as the command center). The prototype developed in this design effort will optimize the cost, size, weight, and power envelopes (C-SWAP) of available off-the-shelf components. The prototype will generally operate autonomously to provide insights into anomalous objects or motions of interest. Instead of transporting raw or compressed data of the captured video signal, the prototype will compute and process these signals to then deliver a set of pre-defined parameters of interest to the command center, where the decision process will ultimately take place. A user interface will allow users to customize the system so that desired anomalous threshold will be detected as well as giving the users some control and monitoring of the data. This effort will benchmark the differences between video analytics at the edge compared to a traditional surveillance system.