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Project Report

For

Ignition: Computer Vision as a Service (CVaaS)

A dissertation by

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Abstract

Images and videos are now essential part of social media, video calling services among lots of other organizations and communities. Nowadays world wide web is full of image and video contents. Due to this increasing amount of images and video computer vision field is not have been grown that much. Still computer vision is limited for several platforms and languages. Even though there are some libraries, frameworks for develop computer vision applications there are many limitations such as cross-platform issues, battery and memory consumption, time that takes to learn, develop, compile and test is also high. Even though there are lots of images online current frameworks and libraries are not capable of process online available content on real-time. Thats whys it's evident to have some cloud service platform to do all the complex parts such as compilation, testing and processing then the developer can only focus on the client side business logic of the application. Previous work done in this computer vision as a service (CVaaS) field has only looked into providing image processing capability. Another drawback was the available service only supports limited amount of computer vision algorithms and those services only lets developers to apply single computer vision algorithm at a time.

To overcome the above mentioned limitations in CVaaS, Ignition CVaaS was introduced which provides developer friendly communication protocols to process images as well as videos in real-time using cloud available and user defined computer vision algorithms. Ignition CVaaS was designed and implemented to upload and run user defined algorithms with capability of applying multiple computer vision algorithms at once. Ignition service provides management console with a web interface to manage applications and algorithms online. The service also provide multi-language APIs to develop application which supports multiple devices and platforms.

The Ignition service supports REST API and WebSocket service and it was implemented with NodeJS and Redis server those technologies were used to communicate the backend components and running processes. Implemented system was tested under different conditions and the Ignition CVaaS was evaluated by evaluators of various domains. These test results, analysis,

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