UNCC_WORK Project - Project Performance Specification Document

Date	Revision	Author	Comments
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1 Project Summary

UNCC_WORK revolves around several different facets of software development. The team should develop infrastructure for components that communicate with each other. Using a camera on a worksite to look for unsafe work conditions and hazardous driving and having those cameras send that information to goggles worn by a construction worker is a main priority. A mobile application should be built as well to interface with the goggles and wristband. Afterward, a simulation should be made to test the final product on a virtual test site for complete safety.

2 Project Requirements

The requirements of the project are to develop a system of IoT devices that communicate alongside one another with the ultimate goal of increasing highway worker safety. Differing from current reactive safety measures in implementing proactively alarming workers. This will be accomplished by analyzing traffic data through deep learning with an embedded device and camera system, physical identifiers through a wristband, and a mobile application communicating with augmented reality goggles to convey hazard warnings to a worker. The user, specifically, a worker, will equip the augmented reality goggles, wristband, and use a

mobile application that will accept various inputs to better analyze potential safety concerns. Each device will work concurrently to provide the greatest accuracy in safety analysis.

2.1 General Requirements

Dr. Tabkhi has expressed that the general requirements of the project are subject to change. As of now, there are no explicit requirements for typical standards that are to be followed.

2.2 Performance Specifications

PS1: The system shall run at no less than 10 frames per second.

PS2: It is desired that the system will have a communication latency of 10ms or less.

2.3 Performance Verification

V1: The prototype will be analyzed in a test bench simulation to verify PS1.

V2: The prototype will be analyzed in a test bench simulation to verify PS2.

3 References

None