Introduction

The purpose of the Intelligent Work Cell is to make safe human-machine coexistence possible in the manufacturing world. The focus of this project was to provide an integrated floor visual system to quickly alert users of conflicts arising between themselves and a robotic manipulator.

Floor Mosaic Design

The 13’x9’ floor display is broken up into three separate modules.

AutoCAD Model

The floor utilizes strip lights running parallel to the main supports. The top Polypropylene layer was selected for diffusive nature and strength. Later design variables included height of support beams, placements of lights and methods of wiring.

Floor Mapping Software

The system uses Inter Process Communication (IPC) to transfer information. The three Raspberry Pi’s control each of the independent floor modules.

Special Thanks to:
Dr. Daniel Huber and Dr. Reid Simmons,
For mentorship, guidance and constructive critique