Keion Bisland

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EDUCATION

WORCESTER POLYTECHNIC INSTITUTE

Bachelors degree in Robotics Engineering July 2019

June 2019 | Worcester Ma, United States

COURSEWORK

ROBOTICS ENGINEERING

Introduction to Robotics
Unified Robotics I
Unified Robotics II
Unified Robotics III
Unified Robotics IV
Social Implications of Robotics
Control Engineering I

COMPUTER SCIENCE

System Programming
Object Oriented Design Concepts
Software Engineering
Human Computer Interaction

ELECTRICAL ENGINEERING

Introduction to Electrical Engineering
Embedded Computing in Engineering Design

SKILLS

OSHA-10 certification
Fluent in multiple programming languages
Competent with Mac OS, Linux and Windows
PCB design experience
Solidworks experience
Fusion 360 CAD/CAM experience
3D Printing
CNC Machining

FLUENT LANGUAGES

English
Spanish

CODING LANGUAGES

C
C++(including embed C++)
Java
Python
Pascal
Matlab
Latex

PROJECTS

6-DOF Robotic Arm

- Designed and 3D printed a modular 6 degree of freedom robotic arm.
- Designed a custom breakout PCB for the Nucleo 144 micro controller development board.
- Coded a control system for the arm using encoder feedback for each motor.

Electric Longboard

- CAD and CAM of a custom adjustable motor mount
- Manufactured a multi-layer composite deck
- Designed and manufactured a custom battery pack and balance charging circuit
- Designed and manufactured a custom controller including feedback from the motors to determine direction and speed.

Robotics Course

- Designed a sub $50 educational robotics kit.
- Adapted WPIs intro to robotics course for the use with this kit for use in developing countries
- Ran trials of our course in local high schools.

Assisted in the development of a Robotic arm for Unified Robotics III

- Designed a mother and daughter board for the feedback system of the arm.
- Assembled, tested and modified the preliminary revisions of the arm.
- Assembled and tested mother and daughter boards including SMD components.
- Tested and developed firmware and matlab interfacing.

Designed and Manufactured a 3 DOF end effector

- Designed a 3D printable 3 edgree of freedom wrist end-effector for the unified Robotics III Robotic arm.
- Printed, tested and modified the wrist mechanism.
- Programmed the control structure for the wrist.

Software Engineering: Recreated the alcohol registry process for the TTB agency

- Designed a front end interface for user to search for alcohol submissions.
- Designed an interface for companies to submit and update alcohol labels.
- Restructured the current TTB database.
- Added failsafe checks in order to prevent incorrect/ invalid data from being entered.

CONFERENCES

MS4SSA Multi-lingual conference held at WPI
Robotia AUVSI conference 2017

3D Printed Quadruped

- Designed custom Motherboard to connect Raspberry Pi Zero W, a Teensy 3.5, a 6 DOF IMU and up to 20 Servos.
- Coded communication protocol between Raspberry Pi and Teensy 3.5.
- Coded with partner on the overall control structure for the robot

LED Matrix

- Designed and built a 30x30 LED matrix using individually addressable leds.
- Created custom animations and displays using the raspberry pi 3.
- Using the ESP32 micro-controller, we replaced the raspberry pi and created an internet accessible version.
- integrate the amazon echo for control.

POSITIONS OF RESPONSIBILITY

WPI COLLAB LAB (ON CAMPUS MAKER SPACE) | Lab Monitor
2016- 2019

WPI WASHBURN SHOPS (ON CAMPUS MACHINE SHOP) | Lab Monitor
2017- 2019

UNIFIED ROBOTICS I & II | Student Assistant
2017- 2019

SOFTWARE ENGINEERING | Lead Software Engineer
2017- 2019