CITS3200 Group 3 Skills and Resources Audit

Skill/Resource	Use	Acquisition
C++ programming, including OpenCV library	Computer vision system built in C++, utilising the OpenCV library, in particular for histogram comparison and background subtraction. Extensions or modifications may be necessary, e.g. enabling detection of cones to build track.	• Cplusplus.com/doc/tutorial for official documentation and tutorials for general usage • Opencv.org for library documentation
Python programming	Car controller system built in Python. Necessary to understand implementation of car controls and how directions are relayed to the cars. Interface will likely need to leverage controller system in some way.	• Python.org for official documentation and tutorials • Head First Python development ebook
Testbed understanding and access	Entire project centres around packaging the functions of this testbed for easy use. Project will need to interface with this system to succeed, thus access and knowledge of its functions and uses is paramount.	• IEEE article (linked in project proposal) • Experimentation with physical testbed • Contact with students who built the system
Pybluez	Package used for Bluetooth compatibility in Python. Used extensively in existing controller code. Project interface will likely contain a Bluetooth component for communication with Zenwheels.	• Available freely on GitHub, includes some documentation and links to example use cases
PyQt4	Python package for creating GUIs. Used in existing code, though seems to have been replaced by Pygame, with some UI remnants remaining. May be used to create graphical interface for increased accessibility.	• Riverbankcomputing.com/static/Docs/PyQt4/ for official reference guide
Raspberry Pi 3	Current system uses Raspberry Pi to interface with Zenwheels. Key aspect of project success is that it should be loadable and run on a Raspberry Pi. Necessary to understand hardware capabilities and limitations.	• Raspberrypi.org for official documentation, user guides, help forums, example projects
Pygame	Used in existing code for track projection. May need to use if it is decided that the projector will be used to increase user engagement.	• Pygame.org/docs for official documentation and tutorials