Dublin Institute of Technology

4th March, 2016

Project Proposal: **Visual Computing Applications**

**Background**

The aim of this project is to develop a software capable of interact with the interface of a computer using the images captured through a webcam. The system will be able to identify many human body parts and their movements, and the software will convert these movements to an action in the computer. An example is to control the cursor of the mouse by moving a human hand in front of the camera. Other ideas may be implemented using the same concept later.

**Objectives**

· Enhance the experience and knowledge of visual computing and its possible applications

· Develop a prototype of an application using visual computing concepts and upgrade it throughout the time

· The system must be able to tolerate the luminosity variance, be accurate and reliable for its purpose

**Scope**

The first phase is to prepare all the tools for the development of this project. It will be used the IDE QtCreator to implement the code and the OpenCV library for the visual computing algorithms. For the purpose of a lower-budget project, the OS used to develop this project will be Ubuntu, because of the vast open source tools and the programming-friendly environment. Also, the version control of the software will be managed through GitHub.

The next step is to develop a prototype of the system and the body parts recognition module should be implemented. This first system must be able to work in the most favorable environment (with moderate homogeneously luminosity and fitted framework). This will sign that the project is following the correct path.

Finally, the final software will be developed from the prototype. An user-friendly interface will be implemented for this system and the image preprocessing will be upgraded for a better caption of the scene.

**Project Budget**

The only material that may be necessary for this project is a camera (webcam). Other materials may be necessary through the project development.

**Key Stakeholders**

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| Employee | Rafael Guimaraes de Paula |
| Project Advisor | Ciaran O'Driscoll |