COMP8470 Project plan

Project title: Controlling a computer by hand gestures
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1. Description:
This project aims to implement a real time human control interface based on hand gestures. This first of all requires a robust and real time human hand pose estimation and tracking system, which tracks a fully articulated hand under large view-points. To this end, the project will use a RGB-Depth camera (e.g. Kinect).

Based on hand pose estimation, the project will develop methods for both static and dynamic gesture recognition. The project will involve literature research on recent progress in pose estimation and tracking of human hands, morphological analysis and comparison of possible concepts, software development and testing, 3D visualization of human hands, and finally a real-time demonstrative application. This project involves extensive processing of 3D point clouds, hand modelling and optimization methods.

2. Tasks:
1) Research on 3D hand pose estimation and tracking with a RGB-D camera
2) Software design and implementation
3) Real-time demonstration of a working prototype
4) Evaluation and eventual comparison to other approaches

3. Schedule:
week 1 - 3
- Research on 3D hand pose estimation and tracking with a RGB camera
- find a suitable method for pose estimation and tracking.
week 4 - 6
- Software design and implement.
- Get familiar with C++,C# as well as GPU programming
week 7 - 8
- Work prototype and debugging.
week 10 - 12
- Evaluation and comparison other approaches.
- Writing report and prepare presentation.