Lower-limb Motion Estimation

Working model of the human lower limbs using cameras and IMUs

Prepared by:

Johann Hendrik Joosten
Dept. of Electrical and Electronics Engineering
University of Cape Town

Prepared for:

Amir Patel
Dept. of Electrical and Electronics Engineering
University of Cape Town

Submitted to the Department of Electrical Engineering at the University of Cape Town in partial fulfilment of the academic requirements for a Bachelor of Science degree in Mechatronics.

August 12, 2017

Title

Development of a Mars Curiosity Rover Simulator

Description

Our knowledge of the planet Mars has been greatly expanded by several rovers that have landed on the planet over the past twenty years. The most capable of these is the *Curiosity* Rover, which is currently exploring the surface of Mars. In an attempt to generate awareness of the effort put into planetary exploration, the project involves the development of a model of the *Curiosity* Rover which replicates some of the control experiences involved in operating a rover of this type.

Deliverables

The items expected as deliverables upon completion of this project included:

1. a scaled, working replica of the Mars *Curiosity* exploration rover.
2. an accompanying software system responsible for:
   (a) operation of the rover;
   (b) remote control of the rover.
3. a full report outlining the design and development process of the rover and software systems.
4. completion of all applicable ECSA ELOs.

Skills and Requirements

Mechanical Design, Software and Electronics Interfacing and Programming.

Area

Space Science and Technology

Declaration

1. I know that plagiarism is wrong. Plagiarism is to use another's work and pretend that it is one's own.
2. I have used the IEEE convention for citation and referencing. Each contribution to, and quotation in, this report from the work(s) of other people has been attributed, and has been cited and referenced.
3. This report is my own work.
4. I have not allowed, and will not allow, anyone to copy my work with the intention of passing it off as their own work or part thereof.

Signature:.....
Sean Wood

Date: 14 November 2016.

Contents

List of Figures

List of Tables