Misr International University
جامعة مصر الدولية

Faculty of Computer Science

Proposal for Graduation Project 2018

DentMaster: Dental treatment training toolkit

In dental schools, it is difficult to train students using real patients. This may lead to a damage for the patient with low-skills students. Alternative solution is to use expensive plastic phantoms to train students. DentMaster is a dental treatment toolkit that will help students for training session by simulating real situations in which the student will be asked to hold the dental driller and use it to perform specific task. The physical driller is connected to a computer to measure the movements in 3D space very accurately and compare and simulate the driller effect of a simulated tooth displayed on the computer screen. Finally, the system will evaluate the task give to the student and the skill level. DentMaster will save damage caused to patients from unskilled students and money spent for physical phantoms.

Input/Output:

- Input: Dental task to be performed & student control of the dental drill.
- Output: Task trace according to the student control of the dental drill & final evaluation of the skill level.

Knowledge required:

- Image Processing
- Programing
- Embedded systems
- 3D Computer vision

Beneficial entities:

- Dental clinics
- University colleges
- Hospitals

Hardware/Software requirements:

- Dental drill, sensors, connectors, electronics,…etc.
- Dental training tasks from school of dentistry (MIU).

Expected outcome:

- New knowledge (yes)
- Research paper (yes)
- Commercial product (yes)