Chapter 4 – Double Intra Oral Camera System

# Problem

As highlighted in chapter 1, one of the major challenges in home sleep apnoea monitoring is a lack of anatomical data on the dynamic changes in the airway of sleep apnoea patient. Although a single intra oral camera system has been proposed in chapter 3, the limitations of the proposed system are:

1. No volumetric changes
2. Limited view angle
3. No stereoscopic vision.

# Objectives

The objectives of this chapter are to:

1. Design a system architecture for a double camera system
2. Develop a prototype of a double intra oral camera system
3. Develop a volumetric change software
4. Develop a stereoscopic vision software
5. Test the prototype of a single intra oral camera system in different mouth configuration
6. Report on the testing done in Objective 3
7. Discuss and conclude on the findings

# Method

1. A dental impression of the upper teeth of the patient’s mouth is obtained to capture the anatomical structure of the teeth.
2. Two 7mm mini USB endoscopic video cameras is attached to the customized denture.
3. The camera is connected to a laptop to capture the airway dynamics during sleep.
4. A data system is used to merge, synchronize, display and store anatomical and physiological data

# Results

To be created ☺

# Conclusion

A double intra oral single camera system can capture the airway dynamics during natural sleep for sleep apnoea patients for up to 8 hours which is not currently clinically possible. The next step is to clinically validate and improve our system.