**Abstract:**

In the last few decades, our world is quietly transforming from “wired” into “wireless”. Wireless system has its unique and significant advantage in portability, physical simplicity and long range. However, unlike commercial market, wireless system can not be easily implemented in some areas such as medical profession. Until today, majority of the hospital are still using the conventional wire connected patient monitoring system in their operating theatres. Reliability, stability, compatibility among many other issues which make the design of wireless patient monitoring system become extremely challenging.

Our project aims to seek and develop a solution for wireless patient monitoring system which will mainly used in operating theatres. This report lists the issues existing with today’s wired connected system. The theories of five vital monitoring parameters: ECG, EEG, PPG, Blood Pressure and Blood temperature are described in section 1 of the report. Section 2 is the survey of related previous work. A thorough understanding of the existing wireless patient monitoring system helps us to get more insights of the challenges which leads us in the right direction of development. The details of of hardware and software design and development are included in section 4, 5 and 6. Section 7 shows the simulation and experimental results from all the sensors and other parts of our system. Section 8 lists down all the limitations, potential issues and other discussions. All of the hardware design, codes can be found in the Appendix of the report.

**[1]** [**http://www.corticaldynamics.com/system/files/private/Innovations%20in%20Anaesthesia%20Technology\_%20Europe.pdf**](http://www.corticaldynamics.com/system/files/private/Innovations%20in%20Anaesthesia%20Technology_%20Europe.pdf)