**Project Proposal**

**Project Title:** EEE2001 Lab PCB Modern Redesign

**Project supervisor:** Peter O’Donoghue

**Project Team Members:**

* Jordan Boekel
* Patrick Curtain
* Ben Gregg

**Brief Project Description:**

To modernise and update the current EEE20001 lab circuit board with modern equipment and surface mounting components. The board should be able to function as current and extra features added where appropriate.

Through the design process research must also be undertaken to investigate the possible solutions for the board and analysis and reason given to the accepted solutions. The final report containing this research as well as engineering analysis, economic analysis, description of testing, code, documentation, guidelines and general management of the project.

**Project Goals For PCB Design**

The goals in redesigning this board are:

* **Cost:** Everyone has their own lab equipment rather than group based.
* **Portability:** Powered from mobile device (USB protocol), small and light enough to carry in bag.
* **Modernise Equipment:** Surface mounted components, new chips, redesigned power supply.
* **Additional Features:** To provide larger functionality to the board. Dedicated display for the clock, more intersections on TL, additional sensors (photo-resistors, pots etc).

**Project Intended Outcomes:**

**Physical Prototype:**

* General redesign of the board, reworked power supply, and fully completed two modules of the board (one of these to be the Traffic Lights or Clock modules) with the aspiration to complete three.
* The prototype will be accompanied with circuit diagrams, design drawings (Altium), documentation of components and full costings for the manufacture of the board.
* Any required code for the modules.

**Report:** The report will cover:

**Project Description:** Summary of the project

**Project Management:** Detailed description of the timeline for the project and jobs that need to be performed.

**Business Analysis:** Description of its needs and the requirements of the board in order to be feasible for use as lab equipment (affordability, durability, size, replaceability etc).

**Economic Analysis:** Costings of parts, labour and manufacture.Total costing of design

**Manufacturing Analysis:**

* Detailed description of the manufacturing process.
* Description of requirements for designing and making a pcb.
* Variations in costings through different suppliers and reasons for this.
* Testing
* Why certain methods were used as well as certain componenets