Digitals Electronics Project Rubric

1. Product Description (10 points)

- **Content (8 points):**
    - Clear and concise description of the product.
    - Describes the purpose of the product, its functionality, and intended use.
    - Describes any key features or unique aspects of the product.
- **Writing Quality (2 points):**
    - Well-organized paragraph with no grammatical or spelling errors.
    - Readable and clear language, easy to understand.

2. Clean Drawing of Product (10 points)

- **Quality of Drawing (5 points):**
    - The drawing is clear and neat, showing the product's design (excluding the circuit). May require more than one drawing.
    - The drawing should be proportional and detailed enough to convey the design.
- **Completeness (5 points):**
    - Drawing is representative of the final product with all important features clearly illustrated.
    - The drawing should be appropriately labeled, with any significant parts or sections labeled if necessary.

3. Bill of Materials (BOM) (10 points)

- **BOM Accuracy (6 points):**
    - A complete BOM generated from KiCad or similar software.
    - Includes part number, description, quantity, manufacturer (if applicable), and cost (if available).
- **Clarity and Organization (4 points):**
    - The BOM is well-organized and easy to read.
    - Properly formatted and easy to follow.

4. Schematic Diagram and Explanation (35 points)

- **Schematic (20 points):**
    - The schematic is complete and clear.

- All components are properly labeled and connections are easy to follow.
- Uses appropriate symbols and conventions for schematic diagrams.

- **Written Explanation (15 points):**
  - Provides a detailed explanation of the schematic, describing the function of each component and how they work together.
  - The explanation should be clear and free from ambiguity, with proper technical terminology.
  - The explanation is about a page in length and explains the logic behind the circuit's design, focusing on the main components and their interactions.

5. PCB Layout (15 points)

- **Design Quality (8 points):**
  - The PCB layout is well-organized with proper routing of signals, power, and ground planes.
- **Silkscreen Labeling (4 points):**
  - The PCB includes your name, class, and version in the silkscreen layer.
- **Completeness and Finalization (3 points):**
  - The PCB layout is finished, with all necessary components placed.
  - Ready for fabrication (clearances and footprints properly checked).

Difficulty of Circuit Design (10 points)

- **Challenging Design (10 points):**
  - The student has attempted to design a digital circuit that uses a variety of components (e.g., IC, LEDs, switches, solenoids, etc.) that achieves the product design.
- **Moderate Design (6 points):**
  - The circuit involves a moderate level of components but doesn't push the boundaries in terms of complexity or design challenge.
- **Simple Design (2 point):**
  - The circuit uses very few components and focuses on basic functionality with minimal technical challenges.

7. Presentation and Professionalism (10 points)

- **Visual Appeal (5 points):**

    - The entire project presentation (including the descriptions, drawings, schematic, BOM, and PCB) is well organized.

- **Organization (5 points):**
    - Project is easy to navigate with a logical flow.
    - Each section is clearly labeled, and information is provided in a cohesive manner including page numbers and TOC.

Total Points: 100 Points