### **Project Title**

**Digital Counter Circuit**

### **Group Members**

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### **1. Introduction**

**Background:** Digital electronics projects are foundational in understanding timing, counting, and display systems. One common application is a digital counter that increments a displayed number using a timing pulse.

**Problem Statement:** Understanding how hardware timers and counter ICs can be integrated to count and display digital pulses, which applies Object-Oriented Programming (OOP) analogously in terms of modular and reusable circuit components.

**Objectives:**

* To design and simulate a digital counter using a 555 timer and two 4026 ICs.
* To visualize how pulse generation can control counting logic.
* To demonstrate practical circuit simulation and basic digital logic design.

### **2. Scope of the Project**

**Inclusions:**

* 555 Timer-based pulse generation
* Two 4026 ICs for driving two 7-segment displays
* Real-time simulation of pulse-to-count display

**Exclusions:**

* No microcontroller or programming involved
* No interfacing with sensors or external inputs

### **3. Project Description**

**Overview:** The circuit uses a 555 Timer IC in astable mode to generate clock pulses. These pulses are fed into two 4026 ICs, which count and display the output on 7-segment displays. Each IC handles a single digit, allowing counting from 00 to 99.

**Technical Requirements:**

* Proteus Design Suite (or similar simulation software)
* 555 Timer IC
* 4026 Decade Counter ICs
* 7-Segment Display modules

**Project Phases:**

1. Research on digital counters and 555 timer configuration
2. Circuit design and simulation planning
3. Implementation and wiring in Proteus
4. Testing and debugging

### **4. Methodology**

**Approach:** The team will use an iterative approach: design – simulate – test. Work will be divided among design, circuit implementation, and documentation.

**Team Responsibilities:**

* Member 1: 555 Timer setup and simulation
* Member 2: 4026 IC integration and 7-segment wiring
* Member 3: Documentation and project coordination

### **5. Expected Outcomes**

**Deliverables:**

* A working simulation of a digital counter circuit
* A short project report detailing the design and simulation process
* Screenshots and timing analysis of the output display

**Relevance:** This project ties into ICT fundamentals by showing real-time data display, basic automation principles, and electronic logic simulation, linking hardware logic to programming-like structured behavior.

### **6. Resources Needed**

**Software:**

* Proteus Design Suite
* (Optional) MS Word for documentation

**Other Resources:**

* Online tutorials on 555 Timer and 4026 ICs
* Instructor support for circuit troubleshooting