**DLD Lab Project**

**Digital Clock with Alarm**

**Group members:**

* Ali Nadir 20K-0325
* Imtiaz Ali 20K-0313
* Ahmed Abdullah 20K-0470
* Kanwar Muzammil 20K-0469

**Objective:**

Aim is to develop a hardware driven application that simulates a digital dice that can be rolled to produce LED pattern.

**Components:**

* 1x 555 Timer IC for pulse generation
* 1x 4017 IC to receive and count pulses
* 9x LED for output
* 4x transistors
* 5x 220K and 12x 10K resistors for surge protection/load distribution
* 1x 1uF, 1x 0.01uF capacitors
* 1x push button
* 3 breadboards
* 4x transistors
* Jumper cables and normal wires

**Abstract:**

This hardware project will allow user to generate conventional dice patterns representing outputs 1 to 6 using timers and counters, which will be visualized using an LED grid. Push button will be held to roll the dice and released to produce a randomized LED output. The output chosen depends on the point of release. Ultimately, this project can be applied to board games and digital signboards. The project spans concepts such as actuation, logical operations involving AND, OR, NOT gates, and conversion of analogue input to digital data and vice versa.

**Circuit Diagram:**

