



**EVENT NAME – ELECTROMANIA**

**TEAM NAME – RADAR\_IITK**

**TECH ID – 10714**

**COLLEGE NAME – INDIAN INSTITUTE OF TECHNOLOGY, KANPUR.**

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## **ABSTRACT**

**COMPONENTS USED:** 8 – bit series to parallel shift register ,LED's ,  
Arduino UNO, resistor and connection wires

## Solution to the Problem Statement

We are considering a 16 x 8 LED matrix, negative terminals of led's in any particular row are mutually connected and therefore, each row will be connected such that they can be simultaneously either be grounded or be given some higher voltage( each row will be connected to one digital pin of Arduino providing low and high voltage(5V) to entire particular row ) . positive terminals of led's in any particular column are connected (which is in turn connected to a particular output pin of swift register Therefore Each output pin of swift register(s)(extended), is connected to each column. At a certain point of time a i'th row will be given zero voltage and others a high voltage(5V). Input to data pin of shift register will fill the i'th row with corresponding low and high values required to be filled in that row. This iteration will be followed quickly for all rows and it will thus display the specific pattern we want on our LED matrix. The values we need to pass to display a particular pattern will be stored in a 2-D array of our Arduino code. The 4 controlling pins will be used to give digital inputs to Arduino, which will initiate the corresponding function left, right, down and rotate, thereby altering our 2-D array. Once the input array is changed it will change the pattern displayed on the LED matrix. We will use only two colours to display our pattern which will be achieved by using 2 different colour LED. Once a row with same colour is achieved, it will delete the row and score will increase by one point.

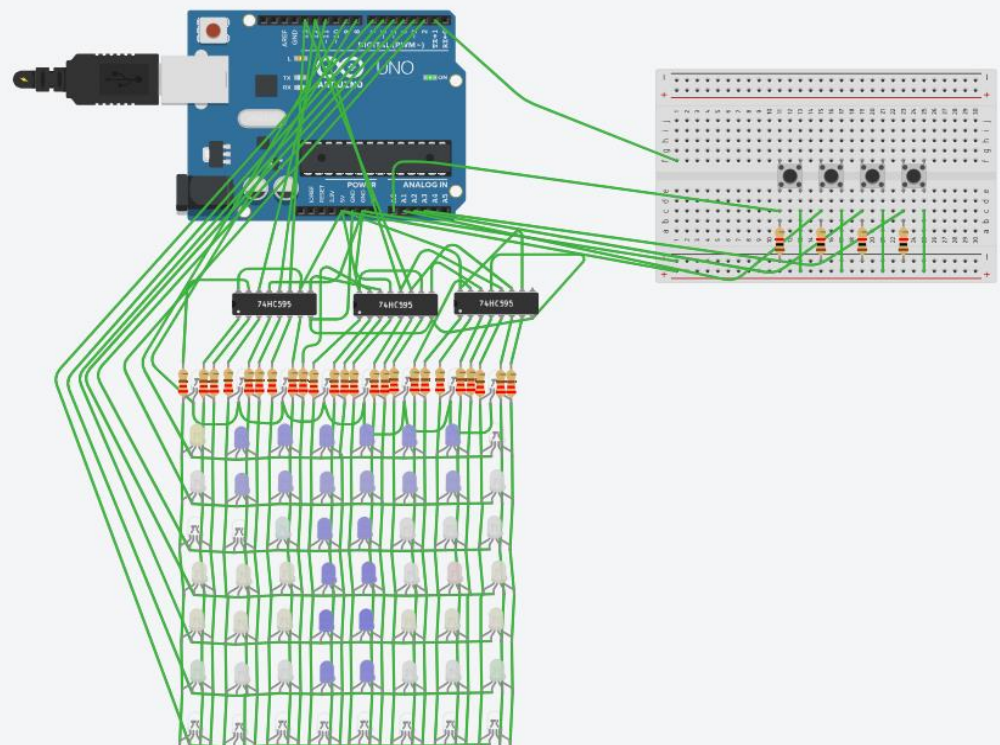


Fig: TinkerCad simulation of pattern[T] being displayed on our LED matrix

