

Task 6  
MBSD  
DCSE, UET Peshawar

Spring-2021

June 20, 2021

- A. Generate a Knight rider pattern on P1 as shown below in figure 1.
- B. By default, the pattern shifts left by 1 position after 1 sec.
- C. When the pattern reaches the end point, it restarts as shown in figure 2 and 3.
- D. Only one LED is ON during any time.
- E. LED is ON only for 1 sec.
- F. When a user presses a button at P3.2 then pattern changes the direction from left-moving to right-moving.
- G. The hexadecimal equivalent of pattern is displayed on two seven segments connected to P2.
- H. Use **timers** to generate the required 1 sec delay.
- I. Program only in C
- J. Whenever a user press P3.2, the pattern toggles from left moving to the right moving knight rider.
- K. Use **External interrupt (INT0)** to detect button press.
- L. Timer should have higher priority.

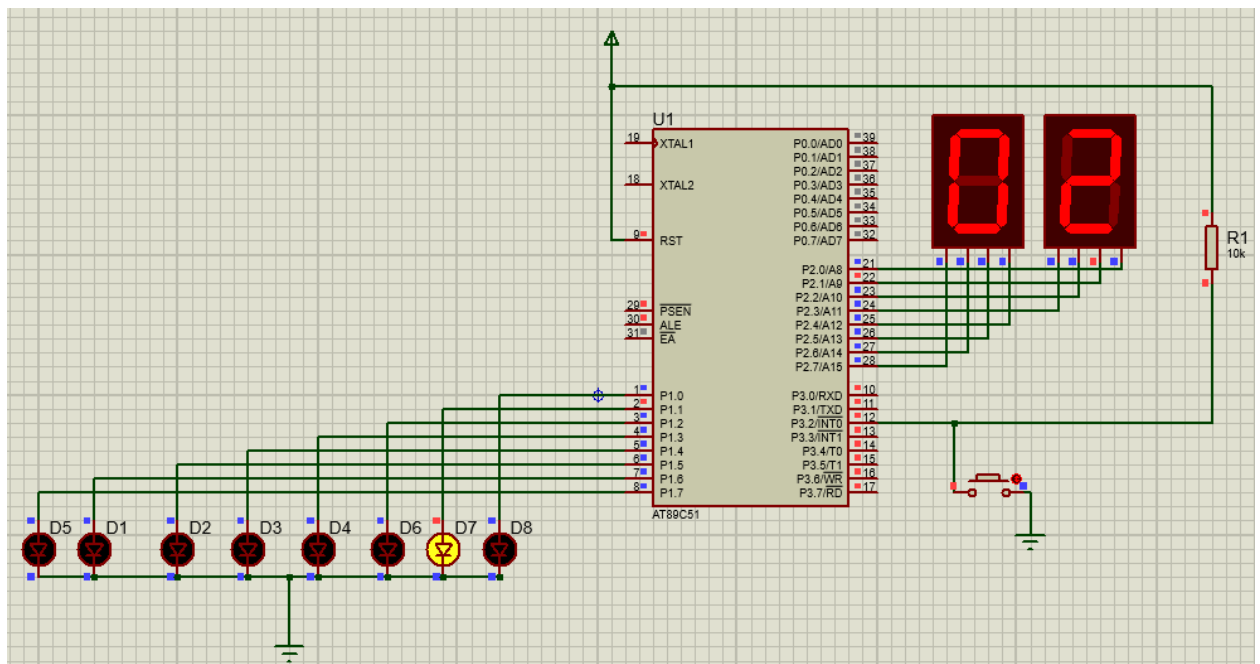


Figure 1: Knight Rider pattern

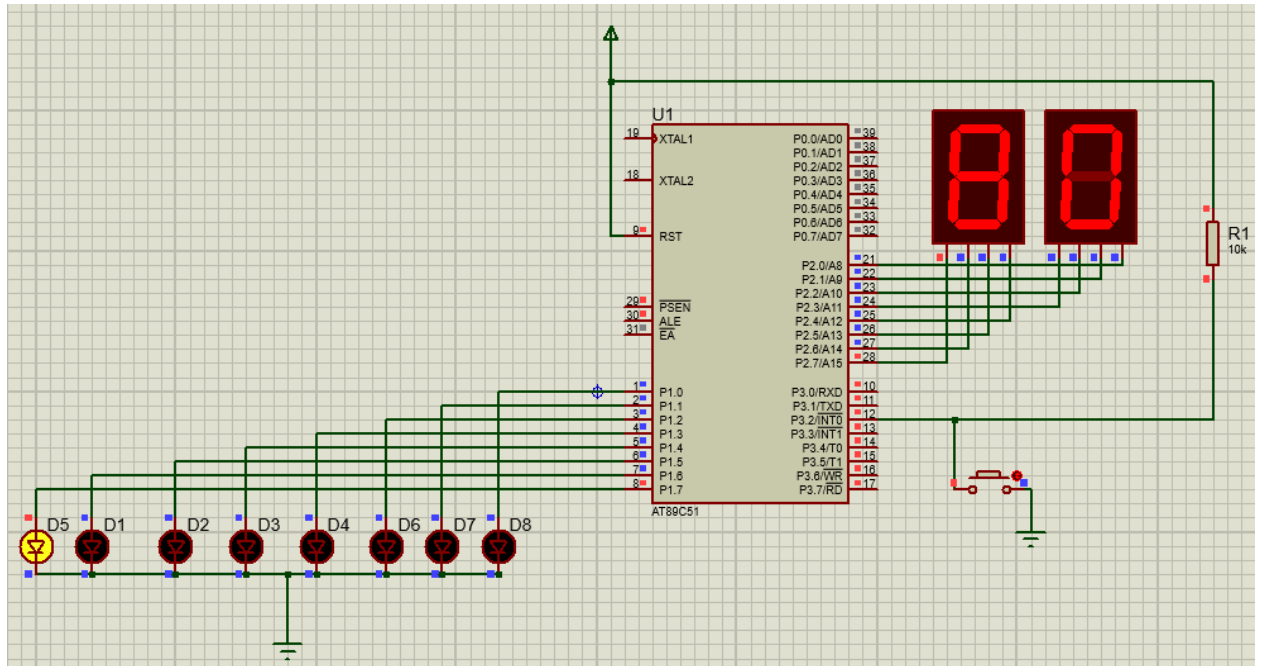


Figure 2: Pattern reaches the left most position

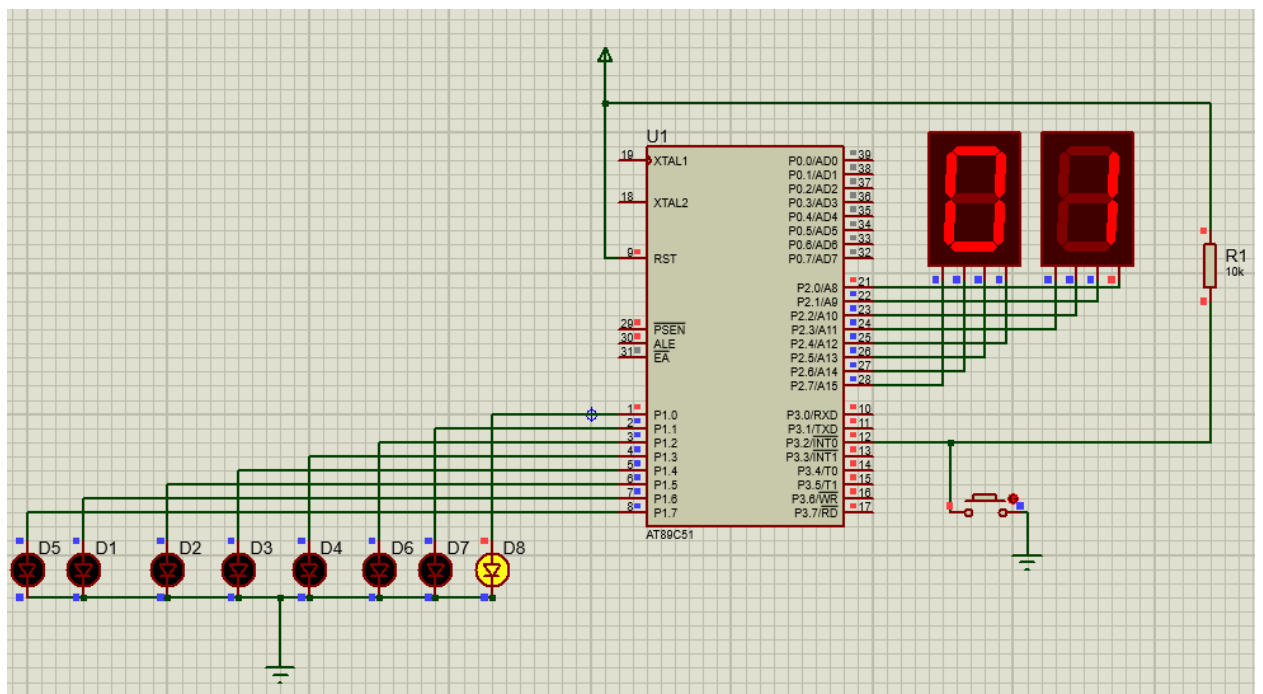


Figure 3: Pattern restarts from right most position