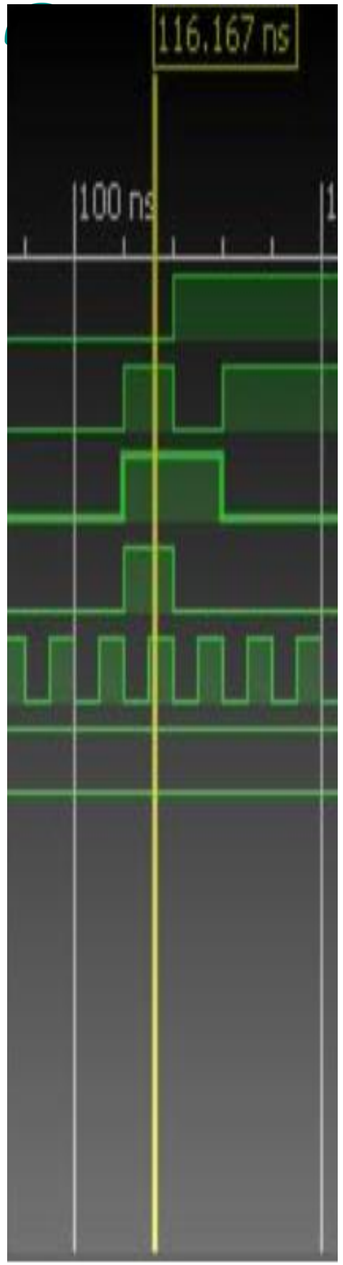
Shift register

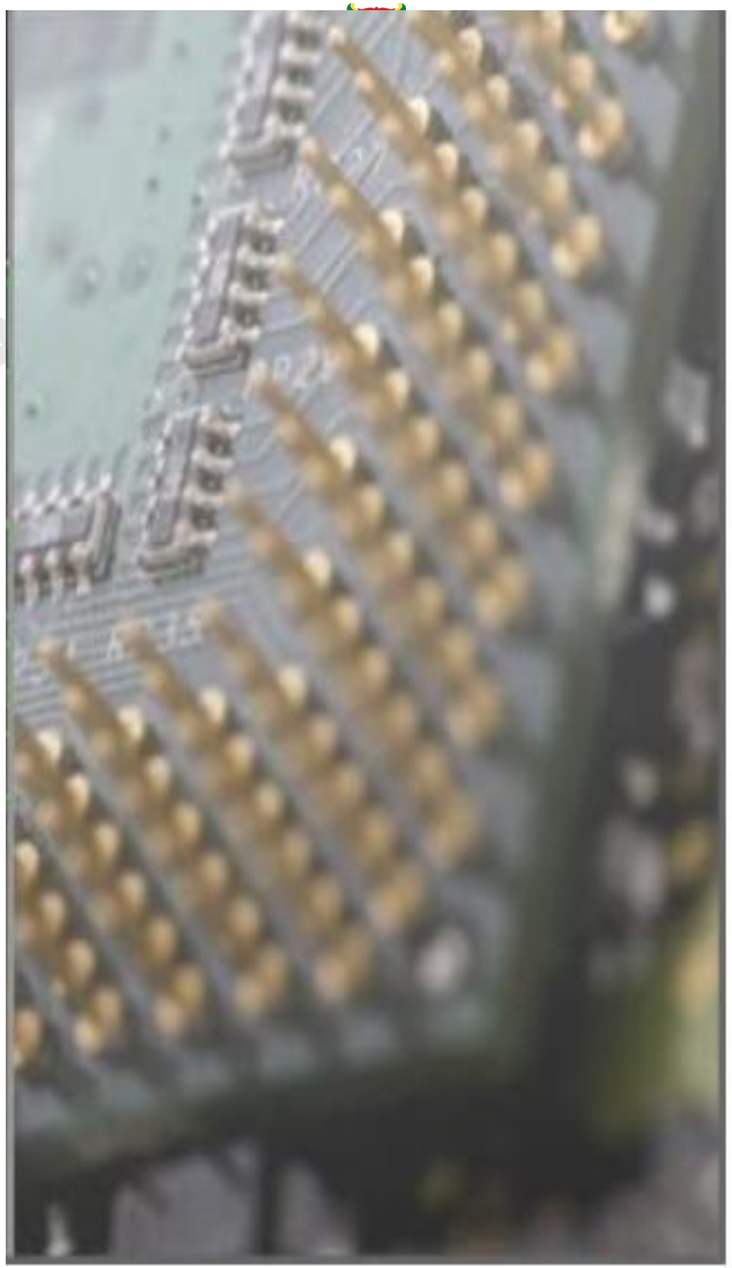
MC. Martin González Pérez

Agenda

- Shift register
- Adding features
- Car Lights

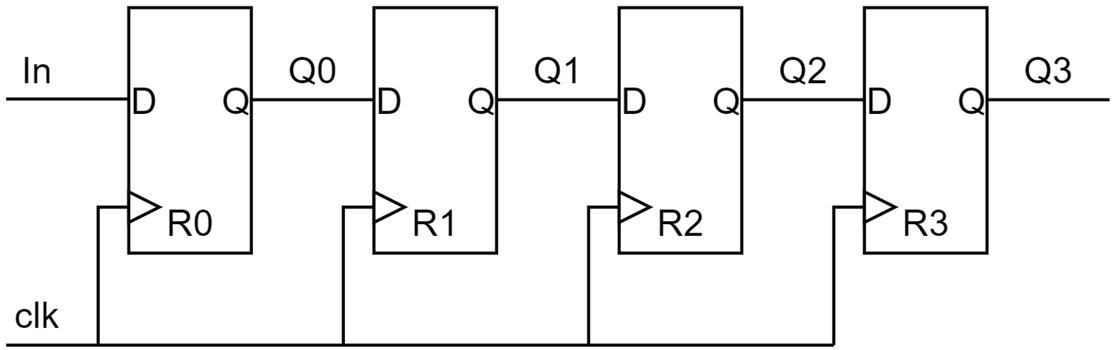


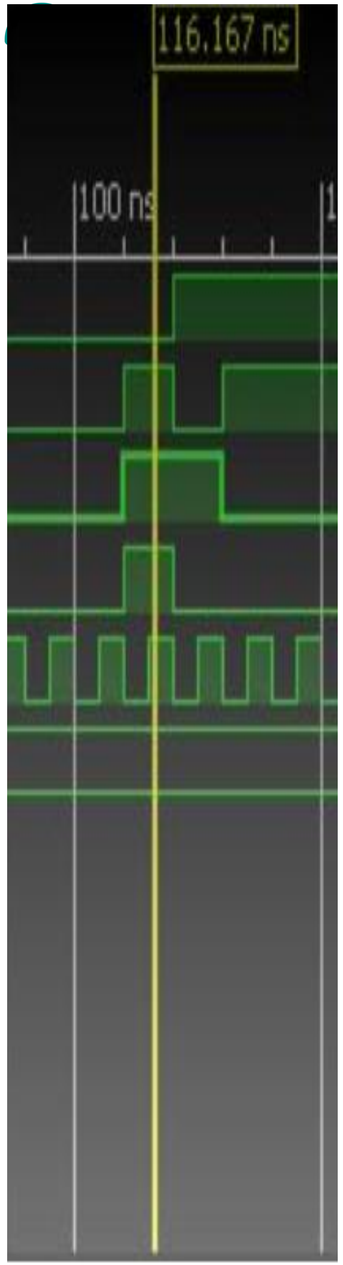
Shift register



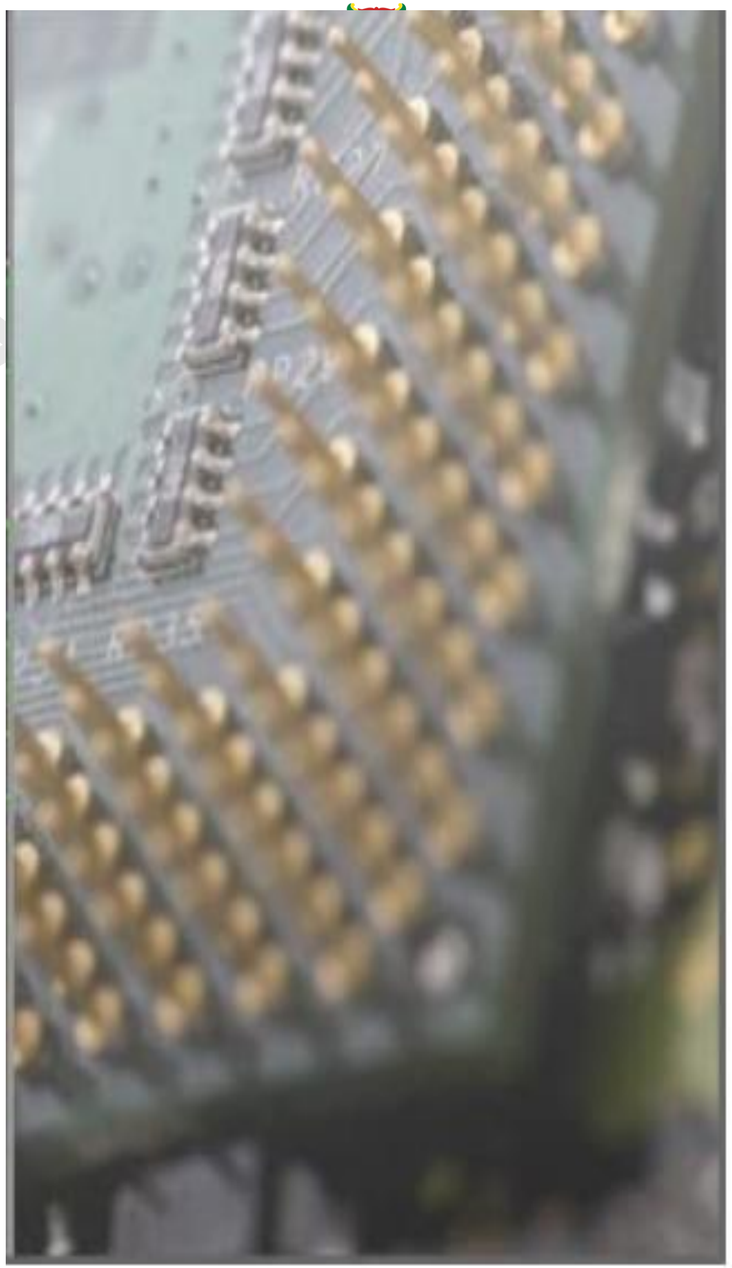
Lab 4A- Shift register

Design a parametrizable shift register using Verilog.





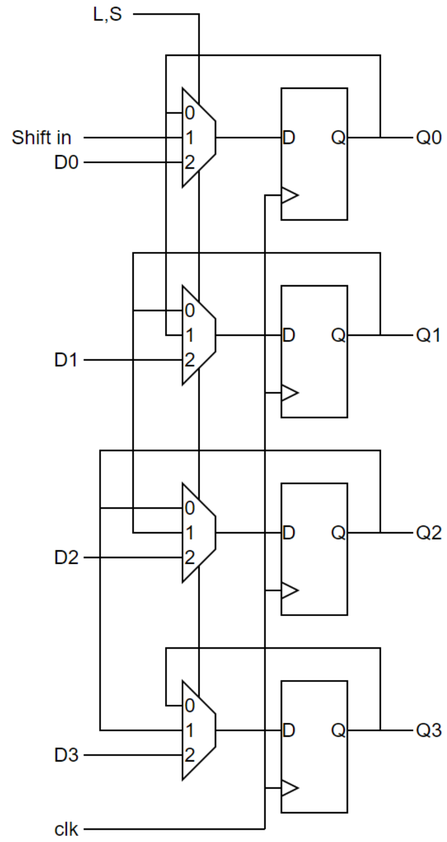
Adding features

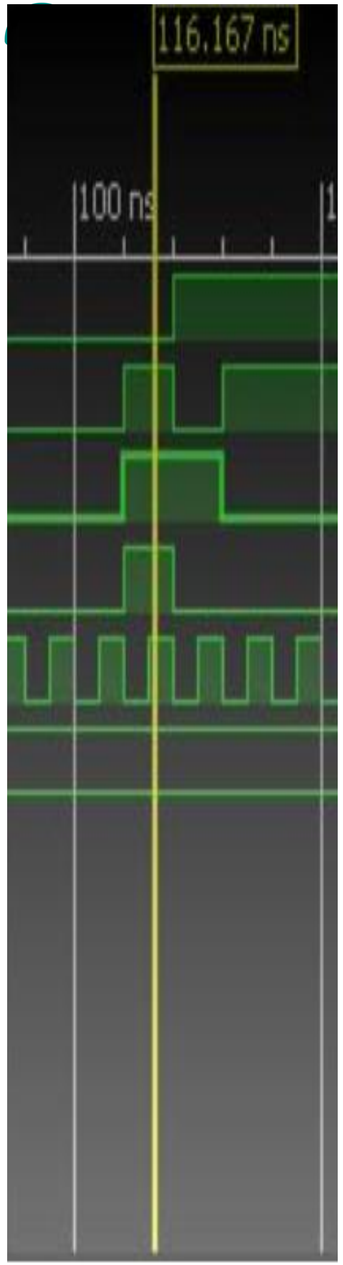


LAB 4B-Shift register

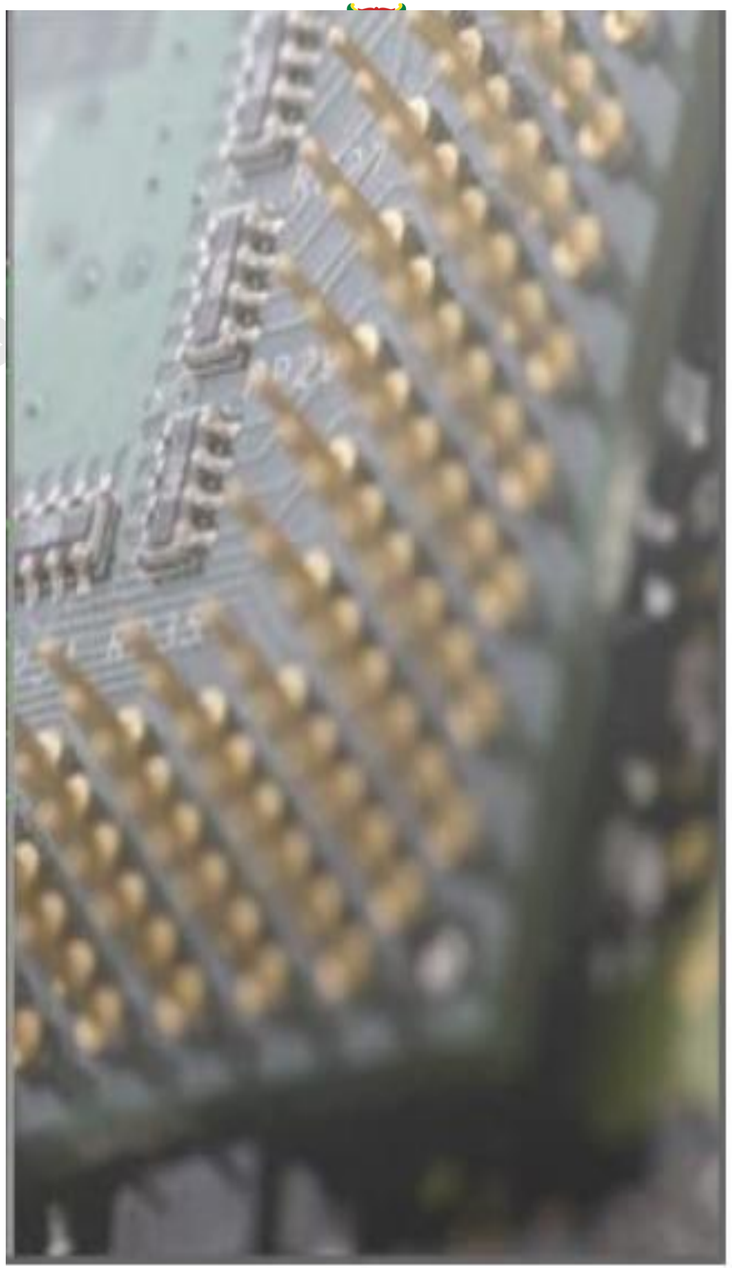
Design a parametrizable shift register with the next features using Verilog.

- The shift The circuit must include an **asynchronous reset signal (arstn)**.
- The register must have an **input (in)** to allow data to be introduced into the shift register.
- The circuit must include an **enable input (shift_en)** to control the bit shifting.
- The circuit must include a **direction input (dir)** to indicate the shift direction.
  - If **dir = 1**, the shift must be to the **left**.
  - If **dir = 0**, the shift must be to the **right**.
- The circuit must include a **rotation input (rot_in)** that enables data insertion.
  - If **rot_in = 1**, the value of **in** is inserted into the shift register at the **MSb or LSb**, depending on the **dir** value.
  - If **rot_in = 0**, the bits in the register rotate:
    - The **MSb moves to the LSb** when **dir = 1**.
    - The **LSb moves to the MSb** when **dir = 0**.





Challenge



Car light

Design a circuit that perform the next light sequences.