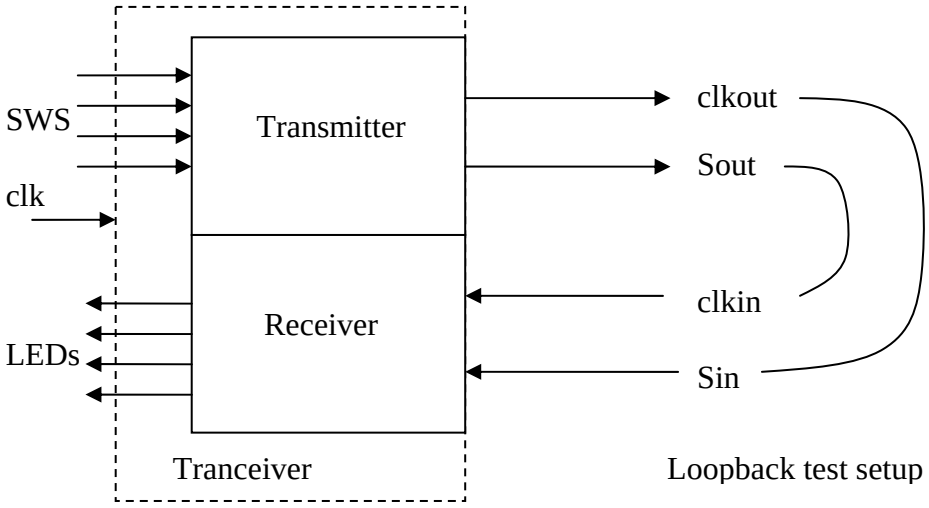
Design Name : Serial Peripheral Interface (SPI) Communication

Objective :

Understand the basics of SPI communication.

Assignment :

1. Design a SPI module with transmitter and receiver. Do a loopback test with the data from switches. Display received data on LEDs.



Check if your LEDs light up according to the switch positions.

2. Add start markers to your data. (example: "11110" for example before data)
3. Test your design with the transmitted signal from your colleagues' designs.

Follow Up Work :

Try removing the clock signal by generating the same frequency clock at the receiver side. Does it work?
Do the same thing when using separate transmitter and receiver kits. Does it work? Why or why not?

Homework :

Add a secondary receiver instance to feed remaining LEDs.. Use an addressing bit in your protocol so that you will know which LED group is addressed. Get this value from the South button while transmitting.