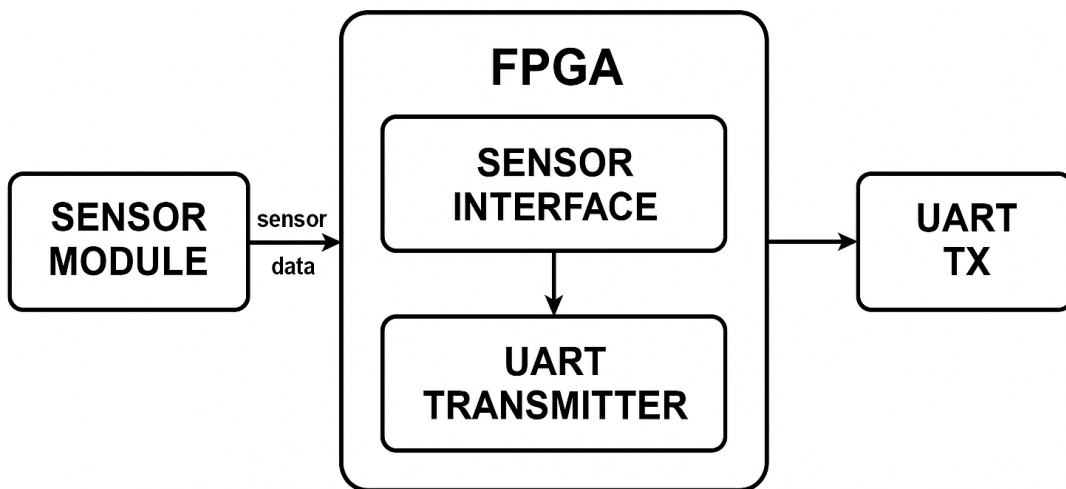


# UART Sensor Data Transmission using FPGA

## 1. Project Overview

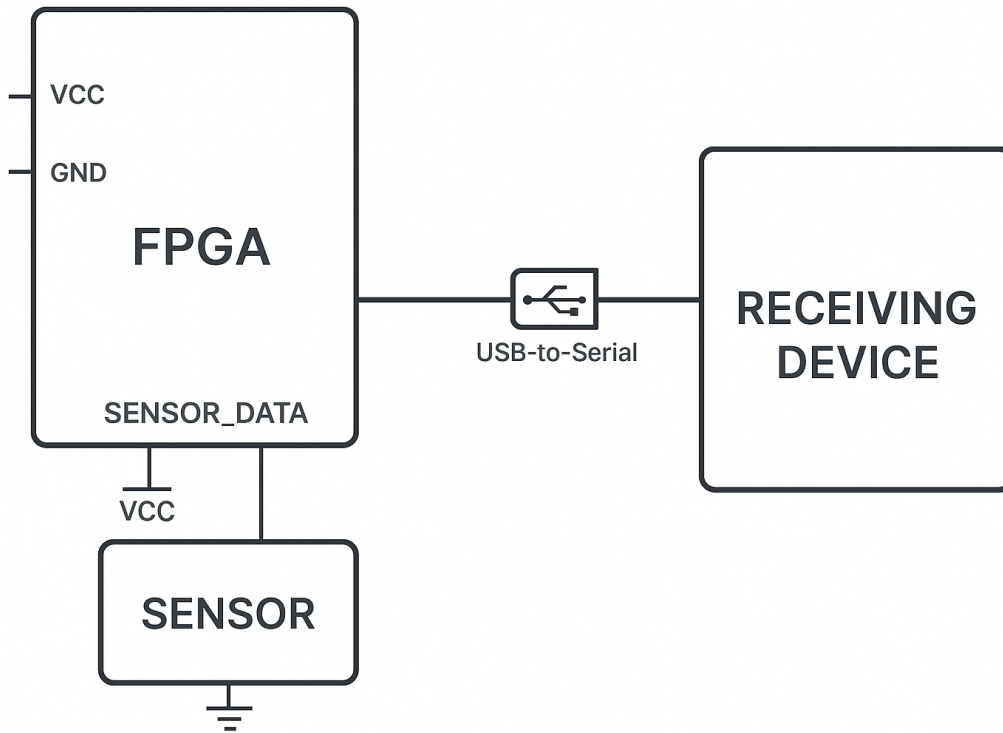
This project implements a UART-based sensor data transmission system using an FPGA. Sensor data is read, processed, and transmitted via UART to a PC or monitoring system.

## 2. Block Diagram



## 3. Circuit Diagram

## UART Sensor Data Transmission using FPGA



### 4. Code Overview

The Verilog code consists of the following key modules:

- sensor\_interface.v: Reads data from the sensor.
- uart\_tx.v: Handles UART transmission.
- top\_module.v: Connects sensor interface and UART transmitter.

A simplified version of the UART transmitter module is shown below:

```
```verilog

module uart_tx(

    input clk,

    input rst,

    input [7:0] data_in,

    input transmit,
```

## UART Sensor Data Transmission using FPGA

```
output reg tx

);

// UART transmission logic here

endmodule

...

```

### 5. Testing & Results

The system was tested by stimulating the sensor and observing the UART output using a serial terminal. The data received on the terminal matched expected sensor values, confirming system accuracy.

### 6. Conclusion

The project successfully demonstrates sensor-to-PC data transmission via UART using FPGA logic. All functional and verification goals were met.