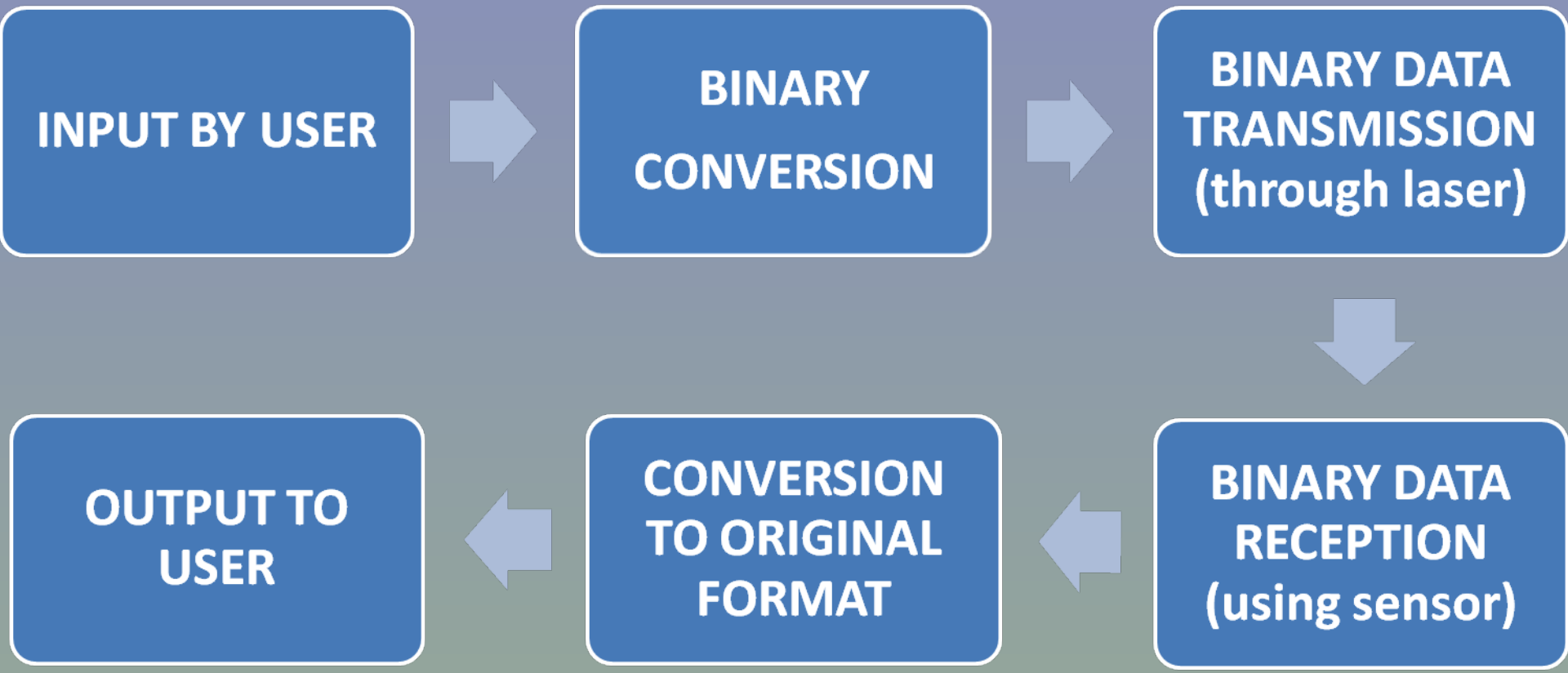
DATA TRANSMISSION

USING LASER

About Project

- It is a Free-Space Optical (FSO) communication.
- Uses light(here laser) as a medium to transmit data.

Project Idea



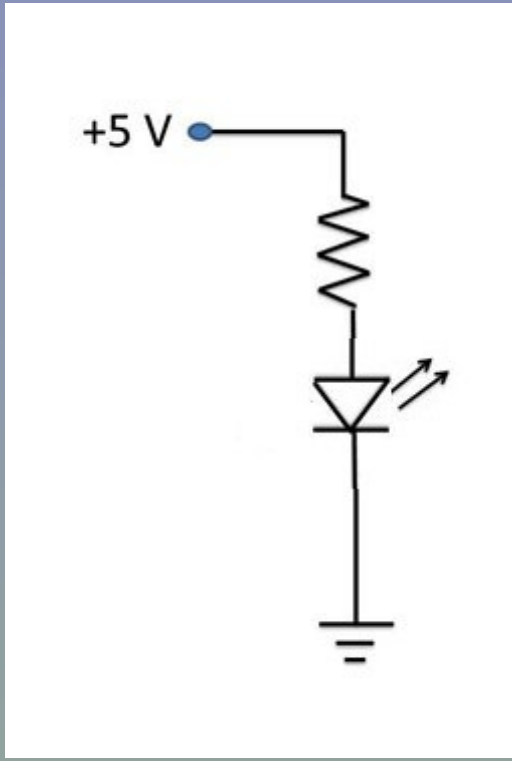
Implementation

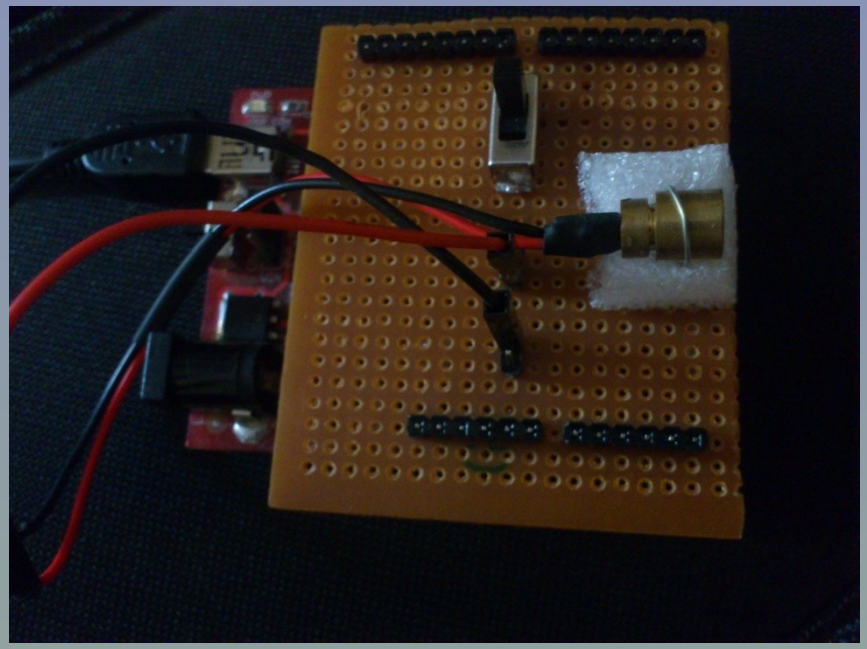
- Data to be transmitted is converted to Binary using PROCESSING software.
- Binary data is transmitted by controlling the voltage(HIGH/LOW)across the laser-diode with a specific frequency.
- Photo diode is used to receive the signals on the receiver side along with a clock of the same frequency.
- Then the received binary data is converted into its original form using PROCESSING software.

Components Used

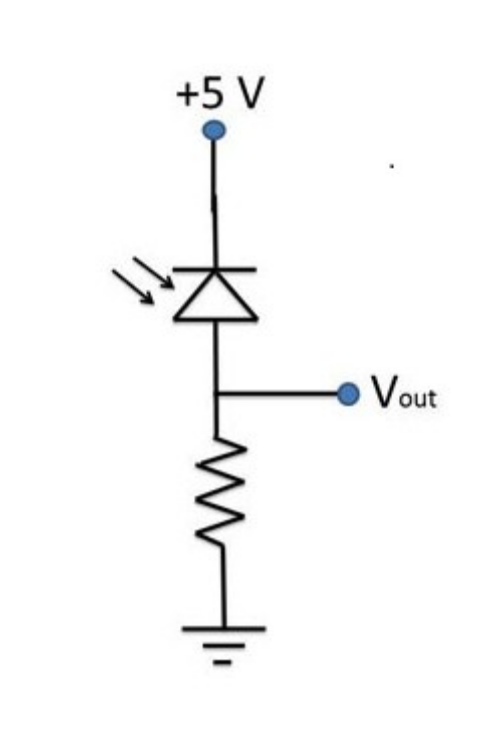
- Arduino Duemilanove(ATmega328)
- Laser Diode (Red)
- Photo Diode (SFH206)
- Resistors

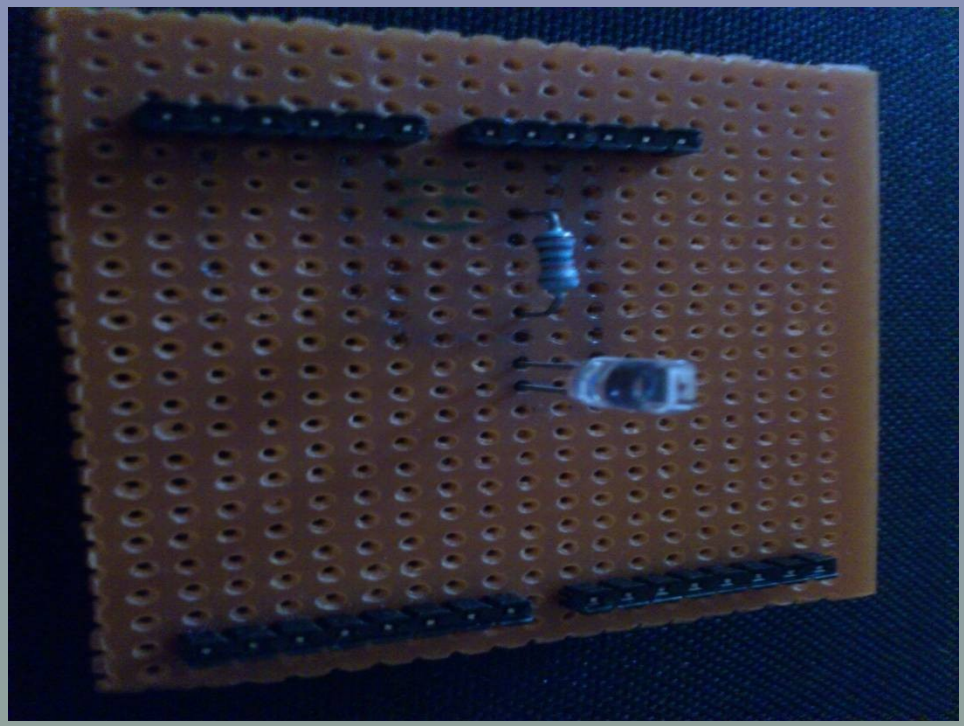
Transmitter Circuit





Receiver Circuit





Transmission logic

- File converted to ascii.
- All ascii converted to 9 bits.
- Data bytes start with 0 and followed by 8 bits.
- Before start of transmission send a start byte.
- End of transmission indicated by stop byte .

Receiver logic

- Start byte is received.
- Receiver converts the bytes received to ASCII.
- Stop bit is received.
- ASCII values converted in file.

Achievements Till Now

- ✓ Sending text.
- ✓ Sending files (type known at receiver).
- ✓ Speed is 9600 bits per second.

Further plans

- Send file extension (e.g. .txt, .png) first before data.
- Make a automatic alignment system.

Thank you

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