LIGHT WIRELESS FIDELITY V1.0

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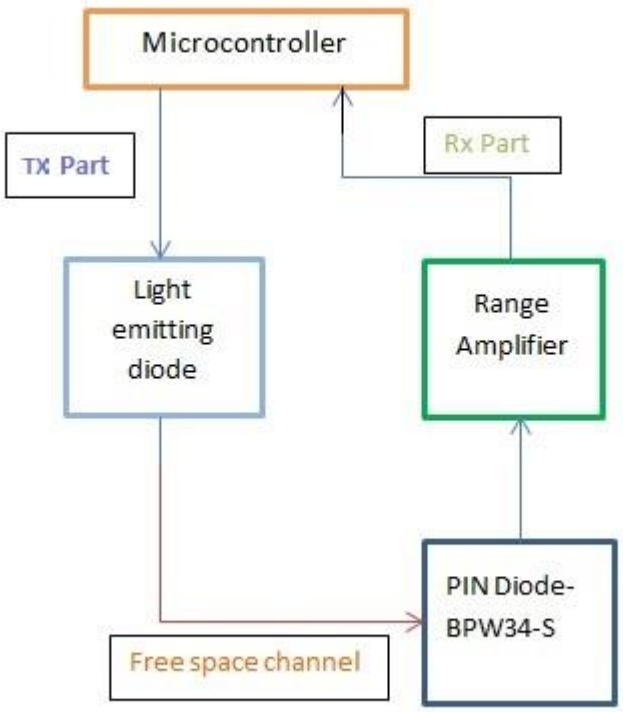
Block Diagram:



Aim of Lifi v1.0

- To transmit 8 bytes of data or more in approximately 1 minute 4 seconds time duration which gives the speed of 1bit/sec perfectly.
- Improvise the speed upto 64B/s.
- Making sure at least 80 bytes of text can be properly sent.
- Proof of concept and final TX and RX.
- Aim to finish working prototype of Lifi v1.0 within Aug'16.

Observations during work:

- Order of bits per alphabet/byte were appropriate after delay problem was fixed
- Used “Rx 0” & “ Rx 1” to show received bits/byte and then collected these bits in a user-defined variable which is then parsed after each byte reception and displayed for bit wise checking.
- After successful reception of each character, stored string sent onto a user-defined string which then displayed the character string sent from the Transmission End.
- Started at the speed of 1 bit/sec of character string reception then improved the speed to 12.5 bytes/second, upon successful reception we theorised for 12.5Kbytes/s and upon implementation got the achievable speed of 15Kbytes/s or 120Kb/s.

Fixes and testing methodology:

- Checked first for any hardware problem by debugging the circuit at all test points(Gnd,Supply,Diode etc),checked for connection lapses or loose contacts on breadboard & then finally operated the experiment to check the output voltages at OPAMP terminals when Light is incident upon the P-I-N photo-receiver diode.
- Next was a quick software check and fixing during multiple diagnosis of stages of project.
- Set 2 delays appropriately- one for LED output(Tx side) and other for P-I-N output(MC Side).
- Checked bit patterns for each character sent at 1bit/s, improvised to 12.5 B/s & then finally improvised to 12.5KB/s. All of these bit rates achieved the desired output practically a bit more faster(finally at 15KB/s approximated).
- Sent “JAI HIND JAI BHARATH” string at Tx Side and checked for the same reception at the max speed of around 15KB/s(120Kb/s).

Result: *Achieved the required aim for Lifi v1.0 and finished all these on 24.08.16.*