Technical Board
IIT Guwahati

ELECTRONICS CLUB

Visible Light Communication

GC Points – 300

Final Date – ??/09/2018

Last Updated – 00: 00 | 20/9/2018

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Aim

To develop a working prototype of a Li-Fi system for communicating digital data between two nodes (such as computers, controllers etc.), along with the measure of data rate.

Li-Fi is a term often used to describe high speed VLC in application scenarios where Wi-Fi might also be used. The term Li-Fi is similar to Wi-Fi with the exception that light rather than radio is used for transmission.

Visible Light Communication (VLC) is a preferred communication technique (Radio Frequency (RF) communication) because of its high bandwidth and immunity to interference from electromagnetic sources. The revolution in the field of solid state lighting leads to the replacement of fluorescent lamps by Light Emitting Diodes (LEDs) which further motivates the usage of VLC.

Specifications

1. A transparent method to display data rate has to be included.

2. The minimum distance between the transmitter and receiver will be 10cm.

3. The light source: A high brightness LED will be provided at the event.

4. The data to be transmitted will be a single bitstream. This data will also be given before the start of the event.

Judging Criteria

The points for LiFi will depend on the following parameters

a) **Innovation**-100

b) **Design**-100

The judgement for the above two parameters will be done by a professor who will be attending the event.

c) **Data Rate** and **Channel Length**

If the data rate and channel length of a team is ‘h bits/sec’ and ‘l mm’ respectively and the highest values of the same are H bits/sec and L mm respectively,

The points achieved will be calculated as $(\log_{HL} hl)*300$.

In order to get participation points, a team must have points>= 250.

Please note, that points here are event points and not GC points.

Since the following problem is also linked to INTER IIT Tech Meet 2019, There might be some minor changes which will be conveyed once Inter IIT Problem statements are out.

Following people are a part of organizing team and hence can't participate in the event in any form-

1) Prateek Manocha	Kapili Hostel
2) Balbir Singh	Umiam Hostel
3) Tejas K Atreya	Bramhaputra Hostel
4) Utkarsh Singh	Bramhaputra Hostel
5) Tarun Yadav	Bramhaputra Hostel
6) Narendra Pal	Umiam Hostel
7) Pallavi Rani	Dhansiri Hostel
8) Akshay Kumar	Umiam Hostel

12 Hostels, 7 Days, 1 Title!