DEPARTMENT OF INSTRUMENTATION AND CONTROL ENGINEERING

SARANATHAN COLLEGE
OF ENGINEERING

VOLUME 4, ISSUE 3

iCERYX

The Voice Of ICE

FOREWORD

The department is working for the development of the students. It is slowly being transformed towards student centric activities, that they being the raw material of the department should be a good product while stepping out of the college.

Dr. S.M. Girirajkumar
HoD/ ICE

FROM THE EDITORIAL BOARD

The exemplary achievements of the department is a classic example of how commitment can produce wonders. The department solley believes that a healthy mind is a prerequisite for a prosperous future. So utmost care and concern is given for the students to realize their aims and to accomplish their goals in the future days to come. Our department has shown a tremendous growth in terms of national level. The PR team feels it its greatest previlege to put to light to the outer world the remarkable and cummulative efforts of all of us which ahs led to this magnificent achievemnt.

R.Santhoshini,Pre-Final Year
P.N.Subbulakshmi, Pre-Final Year
C.T.Muthalagappan,Pre-Final Year
R.Milan Patel, Second Year
G.Subbiah Srinivasan, Second Year
B.Irhfann Ameer, Second Year
R.S.Sanchhali, Second Year

CONTENTS

1. FACULTY DETAILS:

Dr.S.M.GirirajKumar, HOD/ICE, acts as one of the judges for an Elocution competition, sponsored by The Power Grid of India conducted by EEE Department on 13/07/2017.

Dr.M.Shanmugavalli gets DST project, and the same time the approval mail received on 23/08/2017.

2.Workshops Attended By Faculty:

Ms.vallabi attended workshop at NIT,Trichy for 2 days from 27/07/2017 to 28/07/2017.

Ms.Vallabi proposed to participate for PYTHON workshop on 19/08/2017.

3. ACADEMIC ACTIVITIES:

The regular classes for the academic year 2017-2018 was started on 28/06/2017 and the average attendance of II, III and IV year students are 95.02%, 92.8% and 93.01% respectively.

Total number of lateral entry students admitted in II year is 4.

Students of ICE were counseled by their respective staff in charge, before the Internal Assessment test, to motivate them to score above 60% and in particular the students with one and two arrears.

Class committee meetings were conducted for II, III and IV year students on 10/07, 11/07 and

University results have been declared on 12/07/2017. The average pass percentage of II,IV,VI semester students are 56.66%,33.8%, 50%

Internal Assessment Test-1 Question Papers were collected and screened by Dr.Gobikirshan and sent to the Exam Cell on 18/07/2017

Internal Assessment Test-1 started on 20/07/2017.

Anna University releases the exam timetable for upcoming NOV/DEC examinations on 20/07/2017.

Re-test for failures in Internal Assessment test-01 started on 26/07/2017.

E-magazine for the month of May and June was updated in Website on 04/08/2017.

The average attendance of II, III and IV year students are 95.85%, 93.52% and 93.64% respectively.

Self appraisal forms distributed for the faculty members on 04/08/2017.

All ICE faculty Log book initialed by HOD on 04/08/2017.

Academic success sheet for third years reviewed and hand over on 07/08/2017.

Alternate arrangements proposed to principal an Ms.arutselvi leave for three weeks. And decided to Mr.P.Aravind will take EDC,A.Gobikirshanan will take AI ,Ms.Vallabi will take Electronics Lab and T&P will take S.sivakumar with effect from 07/08/2017.

Self appraisal forms submitted to principal on 11/08/2017.

Faculty of ICE submitted the plan of action regarding their academic work, teaching and training the students to get good pass percentage in semester, paper publications, final year project and mini projects.

Gift books to the class toppers in each semester were issued on 19/08/2017

Internal Assessment Test-2 Question Papers were collected and screened by Dr.Gobikirshan and sent to the Exam Cell on 19/08/2017.

Internal Assessment Test-2 started on 22/08/2017.Students of ICE were counseled by their respective class co-coordinators, before the Internal Assessment test 2, to motivate them to score good marks.

Class committee meetings were conducted for II, III and IV year students on 10/08, 11/08, 12/08/2017 respectively and the minutes of meetings were prepared by the respective Chair Persons and submitted.

Internal Assessment Test-2 valuation done on 28/08/2017.

Second portal entry for attendance and Internal assessment-1 test marks on 28/08/2017

Anna university revaluation result updated and ICE moves 65 to 84%.

4.Project Work:

Second year technical coordinator submits proposal, suggestions made and expecting a final copy on 03/07/2017

Template for final year project proceedings initiated and given to final year students on 04/07/2017.

A technical proposal was made for third year and some modifications suggested for final submission on 04/07/2017.

Third year students submit their layout plan and approval with minimum corrections on 18/07/2017.

Project titles and abstracts collected from the students on 22/07/2017 and the projects opted by them were confirmed and the respective guides were revealed to them on 24/07/2017.

Project coordinator has planned to conduct Zeroth Review on 27/07/2017 for final year students.

Project coordinator conducted and done the Zeroth Review on 02/08/2017 for final year students

Third year project review starts on 03/08/2017.

Project review for third year completed on 04/08/2017.

Discussions with ATAH project coordinator Mr.Muthusivaraman on 19/08/2017.

5. Lab:

Service quotation received from Hi tech electronics, trichy for our transducer lab.

6.DRM:

Followed by the Principal and HODs meeting on 07/07/2017, Department Review Meeting-01 was conducted and the Minutes of Meeting was produced to principal on the same day as per the protocol.

Principal and HODs meeting was convened on 18/07/2017, subsequently Department Review Meeting-02 was conducted and Minutes of Meeting was prepared.

Followed by the Principal and HODs meeting on 26/07/2017, Department Review Meeting-03 was conducted and the Minutes of Meeting was produced to principal on the same day as per the protocol.

Department Review Meeting-04 was conducted on 03/08/2017 and the Minutes of Meeting was produced to Principal.

Followed by the Principal and HODs meeting on 09/08/2017, Department Review Meeting-05 was conducted and the Minutes of Meeting was produced to principal on the same day as per the protocol.

7.TRAINING AND PLACEMENT:

Mail to titan industries send for further placements and collaborations on 03/07/2017.

Final year 19 resume were submitted out of 27 CLAD certified students. Total 29 students have CLAD certified, two students not appear, as they are not part of training and placement program on 04/07/2017.

27 resumes of the final year students were submitted to HR Mr. Kesavan. the some was acknowledged on 07/07/2017.

15 ICE students participate in a German orientation program on 10/07/2017.

National instruments send a mail to Mr.Aravind related CLAD Training on 14/07/2017.

6-ICE students resume update for the format IVTL on 18/07/2017.

ECON drive is scheduled on 28/07/2017.

ECON drive 6 –ICE final year students clear puzzle round on 28/07/2017, but no student went beyond it.

IVTL training given for the final year students on 02/08/2017.

39 second year students take Infosys verbal related test after 5 PM on 04/08/2017.

IVTL training for seven final year students to siddharth accompanies with Mr.P.Aravind on 04/07/2017.

CLAD list finalized with Mr. Muralidhar and tentative date fixed on 10/08/2017, for next weekend that is 18/08/2017and 19/08/2017.

CLAD retest conducted for ICE 11 students and the first appearance for ECE 22 students on 11/08/2017.

Infosys drive based pre placement talk conducted for the final year students on 18/08/2017.

CLAD exam proposed for 28/08/2017 on 19/08/2017. And CLAD resumes of 29-10 students are under securing.

CLAD exam finalized on 22/08/2017 for 28/08/2017(5 to 6 PM) for 10 ICE students with 22 ECE students.

Discuss with NI with regarding internship on 23/08/2017.

Infosys drive date tentatively scheduled for 18/09/2017 and addressed final year students reg the same on 24/08/2017.

NI request forms issued to second year students on 24/08/2017.

10 ICE students take up CLAD exam on 28/08/2017.

Three ICE students clear the CLAD exam conducted on 28/08/2017.

30 ICE and 7 ECE CLAD resume with details submitted on 30/08/2017.

VUROM campus drive was scheduled and three ICE students with CGPA of above 7.46, two students clear in first round on 31/08/2017. finally S.Prathiba got selected VUROM campus.

Seven students take online test for Azeerlra company and three students clear first round and also have clear second round test on 31/08/2017.

8. ASSOCIATION ACTIVITES:

ICE Department organizes Guest lecture on "Opportunities for Engineers as Current Technology" by Mr.S.Muthukaruppan, Technical Project Manager at Standard Chartered Bank, Singapore on 13.07.2017.

Ms.sandhaya and Ms. Kemala sharlis -alumina shares with her juniors (IV year) about her views on "ENTRY TO CORE INDUSTRY" on 17/07/2017.

Planned to conduct guest lecturer in ICE Department "What lies after Engineering" by Mr.R.V.S.Muralidhar, Managing Director, Seekers Services, Trichy. In the 2nd week of August.

Final year prathiba wins third price in Elocution competition on 21/07/2017-certificate signed by principal.

CE Department organizes Guest lecture on 08/08/2017, under the title of "What lies after Engineering" by Mr.R.V.S.Muralidhar, Managing Director, Seekers Services, Trichy.

Student's scholarship loop closed on 02/08/2017.

Membership cards (SASTRA-Related) distributed to faculty members on 03/08/2017.

ICT registration for seven students on 04/08/2017.

9. NBA:

Dr.Shanmugavalli attended the NBA Meeting on 14/07/2017

NBA related meeting attended on 21/07/2017 by Dr.Shanmugavalli for the purpose of the progress updated and overall dead line fixed as 12/08/2017.

Dr.Shanmugavalli attended the NBA Meeting on 04/08/2017

NBA works, other HODs given a written request to extend the date on 08/08/2017.

NBA progress is incomplete in terms of perfection level on 11/08/2017, follow up by Dr.Shanmugavalli.

NBA Review meeting represented by Dr.Shanmugavalli on 12/08/2017.

Dr.Shanmugavalli attended the NBA Meeting on 19/08/2017

DRM:

Department Review Meeting-04 was conducted on 03/08/2017 and the Minutes of Meeting was produced to Principal.

Followed by the Principal and HODs meeting on 09/08/2017, Department Review Meeting-05 was conducted and the Minutes of Meeting was produced to principal on the same day as per the protocol.

Achievements:

1.Sports:

S.No	Name of the Students	Events
1.	V.K.Guru Prasaath	3nd place in Football zonals
2.	S.Riyazdeen	3nd place in Football zonals
3.	S.N.Shanawaz	3nd place in Football zonals
4.	T.Kiruba Govind Bangaru	2nd place in Basketball zonals
5.	A.ganesh Kumar	3rd place in Badmintan zonals
6.	S.Ishwarya	1st place in Basketball zonals 2nd place in Batmintan zonals
7.	B.B.Jithendrriyan	3rd place in Hockey zonals
8.	T.J..Gayathiri	2nd place in Chess zonals
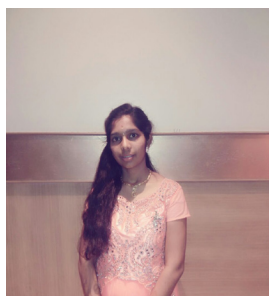
Academy events:

S.NO	Name of the Student	Event
1.	V.K.Guru Prasaath	Cleared the BEC exam conducted by Cambridge University
2.	R.H.Ashwin Shivaram	
3.	P.N.Subbulakshmi	

Guest lecture on "Breach Out Of Comfort Zone"

ICE Department organizes Guest lecture on "Breach Out Of Comfort Zone" by the Head Of The MBA Department Dr K.Karthikeyan., PH.D on 12th September 2017.

Enlightenment to third year students of ICE, guest lecture was arranged on 12-09-2017 between 03.15 pm to 04.45 pm in facing the Breach Out Of Comfort Zone.

It started like a basic introduction to the Comfort Zone with the tamil quotes,then his word gave an self-esteem to believe in oneself. The inspiration was beyond the mind as the living examples were being given as a reference.

He motivated the students by the tamil quotes that each one of them would be good at something, and they have to grab the opportunity to realize it. He also added that, all that matters is how well they are doing it and not the result alone.

He said that the present day companies look for students with ambition, smart work along with hard work. So how focused they should prepare themselves.

He said a key words for the improvement of the students as Control over yourself than on the luck and fate.

Come out of the comfort zone.

Keep Believing Yourself.

All his quotes gave an spirit to everyone which made them to communicate to themselves.

Finally at the end everyone left the lecture hall as a better person.

The Master of Ceremony was Sri Priya of third year and jithrendrriyan of third year. The chief guest introduction was given by Nagimma Begam of third year and vote of thanks by Swetha of third year

The welcome address is given by Dr.M.Sanmugavalli/Profesor/ICE the guest lecture organized by the department of ICE was a guiding and informative one with the support of Thirumurugan of ICE, faculty members and the students.

Industrial Visit

49 students of III year ICE were on Industrial visit to Ooty on 18/02/2017.Dr.M.Shanmugavalli, Mr.S.Sivakumar and A.Gopikrishnan coordinated the students

We reached the place by 13;50. Initially we saw the selection of tea leaves from a pile. the leaves were then fed into grinder which grounded it to small granules.

The sizing involve various stages and the product was transferred through a feeder. The leaves were then fed into a dryer which constituted of big tunnel like a structure covered by a furnace. At the end part of the dryer, the powdered tea was called and was sent to post processing to add flavors to it. The final product was packed in various quantities. At the end of the visit they offered everyone tea and students also bought tea for their consumption.

Road traffic Smarter parking

Parking spaces in major cities are hard to find – whether on main roads, side streets or easily accessible parking structures.

Aided by a new radar system from Siemens, road users will soon be able to receive information on free parking spaces in real time via an app or navigation device.

Searching for a place to park is a nuisance. Finally you arrive at your destination only to realize there are no spaces to be found.

Driving endlessly around the block is a drain on time, fuel and patience. searches each year adds up to 14 trips all the way around the earth.

According to a recent international study on parking management, looking for a parking space takes an average of almost ten minutes in Germany, and as much as 15 minutes in Italy.

Each search involves an average drive of around 4.5 kilometers, which causes 1.3 kilos of CO_2 to be released into the atmosphere unnecessarily. Surveys have also shown that around 30 percent of all drivers in congested inner cities are searching for somewhere to park. In particularly afflicted urban districts the distance traveled during these

Siemens has now developed a parking management solution that allows cities to tackle the increasing shortage of parking spaces. With this solution, which will be tested for the first time starting this summer in a pilot project in Berlin, road users are effortlessly informed of free parking spaces on the roadside between their initial location and their destination.

Various sensor types and technologies are integrated into a smart parking management system that can be optimally adjusted to the individual requirements of any urban area, enabling municipalities to make intelligent use of the parking options at their disposal. Finding parking spaces with radar eyes

At the core of the Smart Parking Solution is newly developed overhead radar sensor technology that constantly monitors parking facilities from a height of several meters and relays occupancy information to a control center.

These sensors can easily be installed on or in streetlights, so there is no need to interfere with the infrastructure as a power supply is already available.

Yet the resulting information is more precise and informative than with floor sensors, for example, which can only report that a space is "free" or "occupied." The radar sensors not only indicate whether there is an object on the parking space, they also provide information on the position and size of the vehicle. The overhead system even recognizes blocked cycle and bus lanes or improperly used spaces at e-car charging stations, so illegally parked vehicles can be quickly detected. The system learns as it operates The sensor readings are sent over the mobile network to the control center where they are analyzed, current parking space occupancy is calculated, and the information is prepared for services such as a parking space app. Route planner apps and infrastructure-based or in-car navigation systems can also use this information to reduce drivers' search times. What makes the Smart Parking Solution special is that the software learns as it operates.

It recognizes when a parking situation is repeated at certain times, combines statistical and real-time data, and makes forecasts. The solution also assists users in selecting a suitable mode of transport: with information on the time required, drivers may opt in advance to use a park & ride system on the edge of the city or even leave the car at home and take public transport.

A first step toward smart cities

As a modular, infrastructure-based sensor system, the smart parking solution uses the Internet of Things platform from the U.S. firm Intel for communication between the sensors and

the control center – thus forming the basis for a sensor and communication network that is suitable for future smart city concepts.

If an RFID solution is added to the network, it will enable functions such as automatic checking of user-specific authorization, for example with resident parking spaces, or up-to-the-minute calculation and billing of parking fees. The Siemens Smart Parking Solution even goes a step further: a whole series of additional applications is feasible, including traffic management support, adaptive light management, emissions data analysis and retail-sponsored city services. The result is a "smart" and innovative city with intelligent control systems.

Home Automation...

by A Mohammed Ashik

The way you begin your day matters. The way the light enters. The way the air feels. The way your technology works flowlessly.

So, imagine... what if every day began exactly the way you wanted?

7AM

Good Morning
Your curtains open to let in the daylight. The air conditioning shuts off and your favorite music plays. When it's time to leave for work, you turn off the lights and activate your security system with a single tap on your phone.
Smart Home Grocery Delivery

2PM

Grocery Delivery
When the local shop calls, you can open your service door remotely - and lock it when your delivery is complete.

4PM

School's Out
Receive automatic notifications when the kids arrive home, safe and sound.

8PM

Evening Entertainment
Lower the shades, dim the lights and watch your favorite movie, all from the comfort of your couch. When it's time for bed, the curtains close, the lights turn off and the air conditioning cools the room so you can sleep well.

Internet of Things (IOT):

by
R.G Hari
Haran

The Internet of Things has been gaining momentum, and this year it converged with market forces in the automobile industry to expand the landscape of sensor technology we 'll be able to integrate into clients' products in 2016.

Most of the basic technologies we saw last month at CES 2016 were familiar to us, but we were newly inspired by their creative uses and enormous reduction in costs.

1. Personal Radar, courtesy of the auto industry

Humans see in the optical light spectrum, and it's natural to assume that our devices — if they could see — would use the optical spectrum, too. But processing visible light takes a lot of signal power to separate individual objects and ranges. A radar device, on the other hand, uses millimeter-wave radio and takes only milliwatts of power.
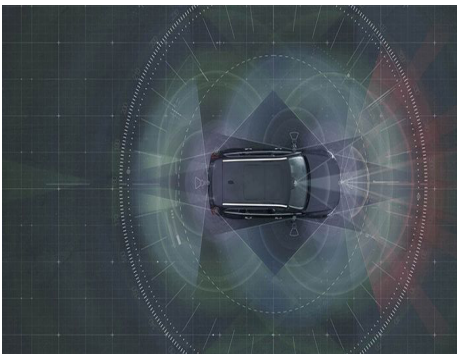
At CES, we saw personal radar sensors that could run off small batteries and see in 3D, using the Doppler effect to determine position and speed of objects. You could put one on your bicycle helmet to warn you if a car is coming up quietly from behind. Your house could use one to detect a figure moving toward it, recognize if it's you or your dog or your car, and open the appropriate door.

Radar guns have been around for a long time, but they've been expensive, big and bulky, and generally reserved for specialized applications like law enforcement. There has been a burst of demand for sensors from the driver-less automobile industry — DRIVE PX 2, pictured above, is a new super-computing platform whose array of sensors allows a 360-degree view of the environment around the car. (There goes the rear view mirror.)

This push from the auto sector along with the growth of wireless products has brought down prices and improved device capabilities, making these technologies accessible to us and to our clients for a few dollars of cost — and less than a square inch to implement.

Other sensors, such as laser-based time-of-flight devices, have gone through a similar evolution, and we expect the auto sector to inspire even better sensors as self-driving cars evolve.

2. Radio Imaging

Another trend we saw was the expansion of ultra-wide band radio, WiFi and Bluetooth, into 3D radio imaging. It's a way to locate people and objects inside what is going on in an area of interest for relatively low cost. Radio imaging can tell not only where someone is, but what they're doing — and it can see through walls.

Radio imaging can tell not only where someone is, but what they're doing — and it can see through walls.

Which room is someone in? Where exactly are they standing? Is a person facing toward a particular device or away? How fast are they moving? This contextual information could have immediate applications in security, home automation, and even industry — preventing machinery from turning on if a person is standing in harm's way, for example. The best part is, it can use radio sources already installed for existing communications.

3. Audio-Beam Forming

Audio-beam forming also made an impression. It's another example of a sensor that used to be pricey and specialized, but is now cheap and practical to implement. Originally developed for military applications, audio-beam forming uses an array of microphones to gather 3D orientation information about the source of a sound. The military found it useful for locating hidden snipers and other dangers; car designers are finding it similarly useful for audio commands, and speakerphone noise reduction.

MEMS microphones cost less than ordinary microphones, and don't need analog circuitry. A commercial example already available is Amazon's Echo (pictured above): it includes a plain language recognition system and has a circle to indicate who it thinks is talking. Currently it retails for $179. But the audio beam sensors we discussed with manufacturers at CES can be incorporated into devices for only a few dollars cost.

It's another example of a sensor that used to be pricey and specialized, but is now cheap and practical to implement.

At Bresslergroup, we're excited about the potential for inexpensive, accurate device controllers for televisions, refrigerators that can discuss dinner with you, and better natural-speech recognition in everything. These types of systems are poised to pop up everywhere, maybe becoming as common as touch screens are now.

4. Wearables for Fitness and Health

Sensors for medical applications were another hot area at CES. Conductive circuitry for sensors that measure heart rate and blood pressure can now be woven into garments or hidden in your earbuds for $5 or so. Blood gas sensing can also be woven in, or done using breath sensors. Blood sugar tracking for people living with diabetes was a popular theme for devices this year. Other sensors we saw, like the Levl, measured acetone in the breath to try to figure out how much fat versus carbohydrate your body is burning when you exercise.

Another sensor SCiO (pictured above) measures nutrients in food optically; the same technology could potentially measure compounds in blood or sweat. We're interested in these developments because of the amount of work we do with medical devices at Bresslergroup.


5. Energy Harvesting Technology

Energy harvesting devices that don't need external power were big in the start-up aisles at CES. (One is Ampy, pictured below, a motion charger for your smartphone.) These devices use existing sensing technology — think of a paper towel dispenser in a public bathroom that dispenses a towel when you wave your hand in front of it — but get their power in clever ways. The extra mechanical energy exerted on the dispenser roll when someone tugs the towel out could be used to charge its battery, for example.

You can have a magnetic device on your backpack or in your shoes that collects energy to charge your cell phone using the motion generated while hiking or running. There were also devices that gathered energy with photovoltaic cells tuned to indoor light wavelengths — to produce more energy at lower costs. As designers, we can apply these innovations to products that use the new, inexpensive, low power sensors, and charge them using energy that would otherwise be wasted —temperature, motion sensors, and so much more.

All these sensor developments have us thinking that the Internet of Things is poised to expand dramatically over the next year or two, as the range of practical applications increases — and we should design accordingly. What do you think? Did we miss any sensing innovations that will be game changers in 2016 and beyond?
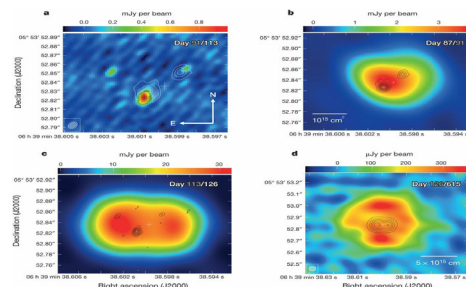
Li-Fi TECHNOLOGY

By
Varshinee
Pre-Final Year/
ICE

Imagine if the lights in your home can provide you internet access. It may be the future of internet in the next few years with the advancement in Li-Fi technology. Li-Fi, the short form for Light Fidelity, is a Visible Light Communications (VLC) system running wireless communications travelling at very high speeds.

The term Li-Fi was coined by University of Edinburgh Professor Harald Haas during a TED Talk in 2011. Haas conceptualized that light bulbs could act as wireless routers.

WORKING:
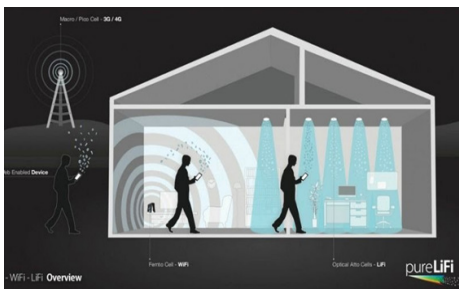
It works on the frequencies generated by an LED bulb.

Visible light communications (VLC) works by switching the current to the LEDs off and on at a very high rate in such a way that makes it difficult for a human eye to recognize it.
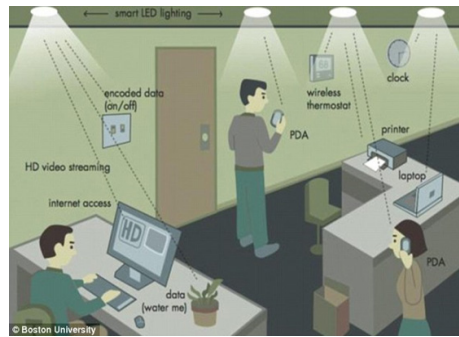
Though the LEDs must be ON even during the day time for data transmission, they can be dimmed below human visibility range.

Electromagnetic spectrum:
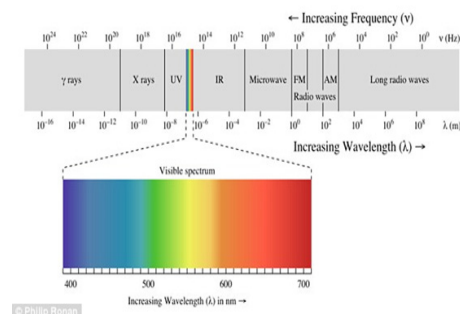
The light waves cannot penetrate walls which makes a much shorter range, though more secure from hacking, relative to Wi-Fi Direct line of sight is not necessary for Li-Fi to transmit a signal; light reflected off the walls can achieve 70 Mbit/s.

ADVANTAGES OVER Wi-Fi

Li-Fi can hit speeds 100 times faster than current Wi-Fi systems.

Visible light cannot pass through walls, making Li-Fi a much more secure system.

Due to the absence of electromagnetic interference, widens its application in hospitals and home automations.

APPLICATIONS

As a light wave could travel through water, Li-Fi could be implemented on vehicles to receive and send back signals.

Vehicles could communicate with one another via front and back lights to increase road safety. This will bring a revolutionary impact on roadways.

Street lights and traffic signals could also provide information about current road situations.

Compared to radio waves, light waves have little effect on medical instruments and human bodies. Hence it can be used in medical field.

LIMITATIONS

Internet can be used only where light of source device is available. Moreover light can not penetrate from walls and it works only in line of sight path.

Though its immune to electromagnetic interference, interference maybe caused by sunlight and other optical sources present nearby. Lifi system requires whole new infrastructure. This will add cost to the companies/people wanting to take LiFi Internet service. Lights need to be kept ON throughout day and night. As internet is need of the hour, this will waste energy more than any other internet system.

While the system seems promising, it won't likely replace Wi-Fi entirely, at least not anytime soon. Instead, researchers are now looking to retrofit devices with Li-Fi to use the two wireless systems together to optimize speed and security. If this technology becomes successful then there's a chance for having internet access from our street lights and wherever we go, well ofcourse with a light source.

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