



CTC(T&IT), CRPF



Monthly

e-Newsletter

FEB - 2022



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**“Everyone has inside of him a piece of good news.
The good news is that you don’t know how
great you can be! How much you can love!
What you can accomplish!
And what your potential is!”**

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READER’S CENTER

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Valedictory Function at BIT Mesra,Ranchi



Cyber Bullying: A Disregarded Issue In India

These days people are totally dependent on the internet. The Internet became a day-to-day necessity in human lives. The more people are using the internet the more it is developing. And the more it is developing the more it is creating an impact in the society. Communicating with people became so easy. But everything has its own drawbacks and so does the internet. Some of the drawbacks which include attack on privacy, cyber stalking, phishing scams, online harassment, cyber bullying, fraud and many more.

What Is Cyber Bullying?

Cyber Bullying is nothing but bullying someone on online platforms such as Facebook, Whats-app, Instagram, tweeter etc. But it is said to be bullied only when something negative is shared about someone and that can cause a huge harm to their reputation. Cyber bullying is so dangerous because it gives the ability to



harass anyone in public at any time through devices and mostly students are the victims of these kinds of harassment. A Canadian educator, Bill Belsey first coined the term cyber bullying. The main intention of cyber bullying is to harm a person mentally.

Cyber bullying is also done by creating a website and posting atrocious pictures of a person which can cause harm to their reputation. Threatening someone on social media or in any gaming app can also result in cyber bullying.

What Are The Steps Taken?

After the amendment of Indian Penal Code, 1860 in 2013 there are some laws to rely on such as Section 499 of IPC defines defamation, Section 292A defines printing matter intended to blackmail, Section 354A describes sexual harassment, Section 354D defines stalking, Section 509 defines any word or act intended to insult a woman.

The Information Technology Amendment Act also provides remedies for cyber bullying. Section 66A of IT Act defines punishment for a person for

sending an offensive message through any communicating device. Section 66E defines punishments for invading privacy. Section 67 defines punishment for publishing any obscene picture.

What Is The Present Condition?

Presently in India there is a huge increase in cyber bullying cases. But the no. of cases reported are not proportionate to actual no. of cases because 9.2% of the kids didn't tell their teachers and parents about getting bullied. According to Child Rights and You (CRY) 1 in 3 adults get bullied everyday and most of them are aged between 13-18 years. According to the National Crime Records Bureau there is a 36% increase in cyber stalking and cyber bullying cases in India.

Conclusion

Cyber bullying, if no steps are taken against this, can create a huge problem on the Internet. Lawmakers should discuss with the psychiatrists to make law against cyber bullying because bullying causes a huge mental pressures among children and mostly children are the victims.



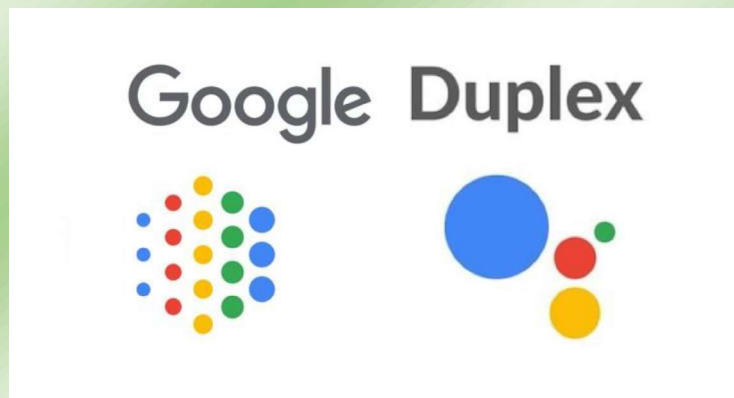
Not only cyber bullying, there are many other cyber crimes happening all over the country which needs separate laws. If laws are not made soon the victims will have to suffer more. But as we all know precautions are better than cure the students needs to be more aware and needs to use Internet positively, they need to take security measures on their social media profiles.

ASI/T Lokendra Singh

Google Duplex

Google Duplex is an unusual AI project active in the most of the US, as well as a diverse set of countries around the world. At first it was narrowly focused on restaurant reservations, but its use has since expanded to other tasks.

Google Duplex was first announced by CEO Sundar Pichai during the May 2018 Google developers conference. He showed how the service used an AI-driven voice to make phone appointments without any interaction from the user. Not only was the AI able to understand someone on the other end of the line, it was able to respond with correct answers to questions, and insert “ums” and pause breaks to make itself sound more like a real human.



In November 2018, the company announced that Google Duplex was rolling out to a select number of public users in a few US cities. A few changes were made to address controversies, however, namely making Assistant identify itself, as well as inform call recipients that they’re being recorded. If a recipient says they don’t want to be recorded, Assistant now transfers a call to a non-recorded line.

Google in Oct,2020 offered an update on the status of Duplex, its AI technology that uses natural conversations to get things done — like making restaurant reservations, booking appointments or updating a Google Business listing, for example. When the pandemic began, Google expanded its use of Duplex for business updates to eight countries, and has since made more than 3 million updates to business listings — including pharmacies, restaurants and grocery stores.

Google also introduced another Duplex-powered feature, “Hold for Me,” which lets you use Google Assistant to wait on hold on your phone call, then alert you when someone joins the line.

Where can you use Duplex?

Google Duplex works in 49 US states, according to Google's support site. Only Louisiana is holding out.

Outside the US, supported countries currently include:

Argentina, Australia, Brazil, Canada, Chile, Colombia, France, India, Japan, Mexico, New Zealand, Peru, Spain, United Kingdom, Venezuela

Which devices support Google Duplex?

Google Duplex was first launched for owners of Google's Pixel, Pixel XL, Pixel 2, Pixel 2 XL, Pixel 3 and Pixel 3 XL phones. Now, though, the feature should be available on any device with the Google Assistant app and access to Search or Maps. That's quite a spectrum, including both Android devices and iPhones.

What can you do with Google Duplex?

At the moment, Duplex is geared towards making restaurant reservations, buying movie tickets online, setting up haircuts, or helping with compromised passwords. In the future, the service could do a lot more, since Google is only really limited by the power of its AI.

A more minor feature is the ability to check business hours, but since those are often listed in Google Search or Maps results, it's generally only useful during holidays or emergencies.

HC/RO Satender Singh Suhag

6LoWPAN (IPV6 OVER LOW -POWER WIRELESS PERSONAL AREA NETWORKS.)

Introduction

6LoWPAN is connecting more things to the cloud. Low-power, IP-driven nodes and large mesh network support make this technology a great option for Internet of Things (IoT) applications. As the full name implies "IPv6 over Low-Power Wireless Personal Area Networks" 6LoWPAN is a networking technology or adaptation layer that allows IPv6 packets to be carried efficiently within small link layer frames, such as those defined by IEEE 802.15.4. The use of an end-to-end, IP-based infrastructure takes full advantage of 30+ years of IP technology development, facilitating open standards and interoperability as largely demonstrated through the daily use of the Internet and its almost 3 billion users.

6LoWPAN is an open standard defined in RFC6282 by the Internet Engineering Task Force (IETF), the standards body that defines many of the open standards used on the Internet such as UDP, TCP and HTTP to name a few. A powerful feature of 6LoWPAN is that while originally conceived to support IEEE 802.15.4 low-power wireless network in the 2.4-GHz band, it is now being adapted and used over a variety of other networking media including Sub-1 GHz low-power RF, Bluetooth Smart, power line control (PLC) and low-power Wi-Fi.

6LoWPAN network architecture

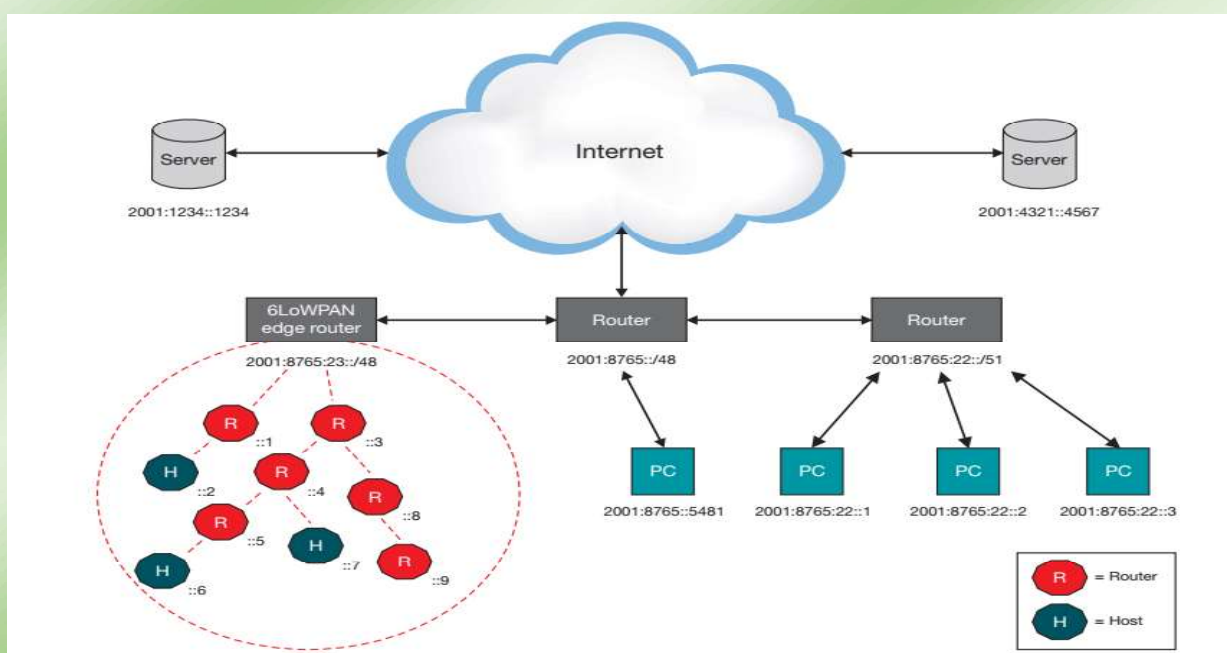


Figure shows an example of an IPv6 network, including a 6LoWPAN mesh network. The uplink to the Internet is handled by the Access Point (AP) acting as an IPv6 router. Several different devices are connected to the AP in a typical setup, such as PCs, servers, etc. The 6LoWPAN network is connected to the IPv6 network using an edge router. The edge router handles three actions:

- 1) The data exchange between 6LoWPAN devices and the Internet (or other IPv6 network)
- 2) Local data exchange between devices inside the 6LoWPAN
- 3) The generation and maintenance of the radio subnet (the 6LoWPAN network).

By communicating natively with IP, 6LoWPAN networks are connected to other networks simply using IP routers. As shown in Figure 1, 6LoWPAN networks will typically operate on the edge, acting as stub networks. This means data going into the network is destined for one of the devices inside the 6LoWPAN. One 6LoWPAN network may be connected to other IP networks through one or more edge routers that forward IP datagrams between different media. Connectivity to other IP networks may be provided through any arbitrary link, such as Ethernet, Wi-Fi or 3G/4G. Because 6LoWPAN only specifies operation of IPv6 over the IEEE 802.15.4 standard, edge routers may also support IPv6 transition mechanisms to connect 6LoWPAN networks to IPv4 networks, such as NAT64 defined in RFC 6146. These IPv6 transition mechanisms do not require the 6LoWPAN nodes to implement IPv4 in whole or in part.

Advantages of 6LoWPAN

Uses Open IP Standards

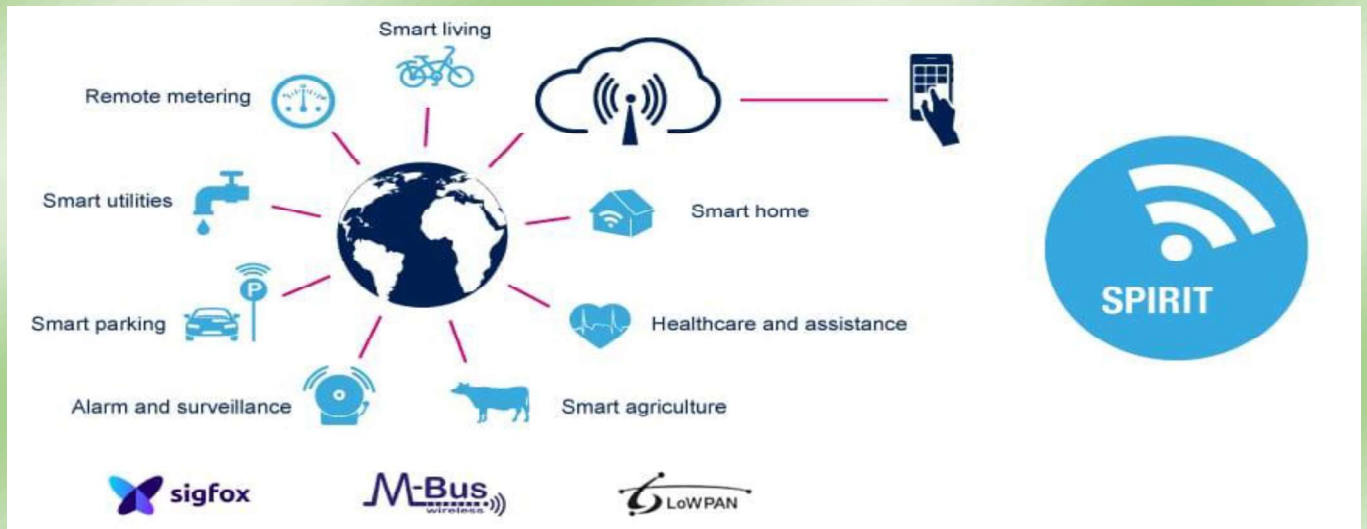
Offers End-To-End IP Addressable Nodes

Offers Self-Healing, Robust and Scalable Mesh Routing

Leaf Nodes Can Sleep For a Long Duration of Time

It is a Standard: RFC6282

6LoWPAN Application Areas



Automation: There are enormous opportunities for 6LoWPAN to be used in many different areas of automation.

Industrial monitoring: Industrial plants and automated factories provide a great opportunity for 6LoWPAN. Major savings can be made by using automation in every day practices. Additionally, 6LoWPAN can connect to the cloud which opens up many different areas for data monitoring and analysis.

Smart Grid: Smart grids enable smart meters and other devices to build a micro mesh network. They are able to send data back to the grid operator's monitoring and billing system using the IPv6.

Smart Home: By connecting your home IoT devices using IPv6, it is possible to gain distinct advantages over other IoT systems.

6LoWPAN Security

6LoWPAN can use AES-128 link layer security which is defined in IEEE 802.15.4. This provides link authentication and encryption.

Further security is provided by the transport layer security mechanisms and runs over TCP.

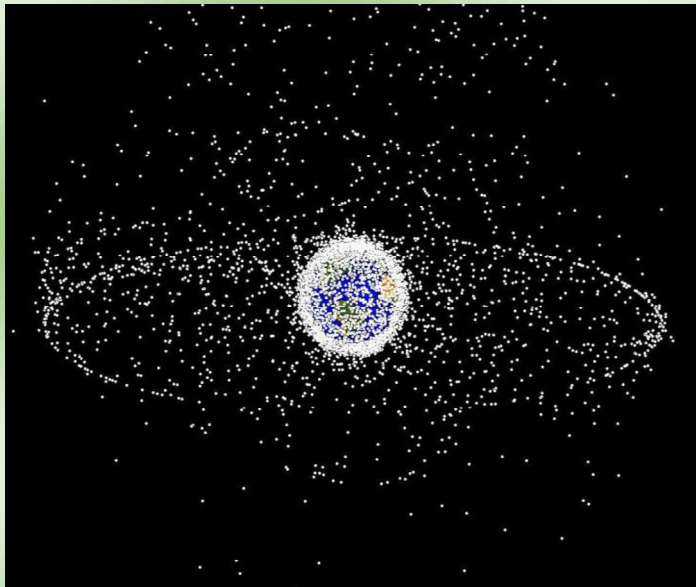
For systems where UDP is used, the transport layer protocol defined under RFC 6347 can be used.

HC/RO Sandeep Malvi

Space Debris

Space debris (also known as space junk, space pollution, space waste, space trash, or space garbage) is defunct artificial objects in space—principally in Earth orbit—which no longer serve a useful function. These include derelict spacecraft—non-functional spacecraft and abandoned launch vehicle stages—mission-related debris, and particularly numerous in Earth orbit, fragmentation debris from the breakup of derelict rocket bodies and spacecraft. In addition to derelict man-made objects left in orbit, other examples of space debris include fragments from their disintegration, erosion and collisions or even paint flecks, solidified liquids expelled from spacecraft, and unburned particles from solid rocket motors. Space debris represents a risk to spacecraft.

Space debris is typically a negative externality—it creates an external cost on others from the initial action to launch or use a spacecraft in near-Earth orbit—a cost that is typically not taken into account nor fully accounted



for in the cost by the launcher or payload owner. The measurement, mitigation, and potential removal of debris are conducted by some participants in the space industry.

As of January 2021, the US Space Surveillance Network reported 21,901 artificial objects in orbit above the Earth, including 4,450 operational satellites. However, these are just the objects large enough to be tracked. As of

January 2019, more than 128 million pieces of debris smaller than 1 cm (0.4 in), about 900,000 pieces of debris 1–10 cm, and around 34,000 of pieces larger than 10 cm (3.9 in) were estimated to be in orbit around the Earth. When the smallest objects of artificial space debris (paint flecks, solid rocket exhaust particles, etc.) are grouped with micrometeoroids, they are together sometimes referred to by space agencies as MMOD (Micrometeoroid and Orbital Debris). Collisions with debris have become a hazard to spacecraft; the smallest objects cause damage akin to sandblasting, especially to solar panels and optics like telescopes or star trackers that cannot easily be protected by a ballistic shield.

Below 2,000 km (1,200 mi) Earth-altitude, pieces of debris are denser than meteoroids; most are dust from solid rocket motors, surface erosion debris like paint flakes, and frozen coolant from RORSAT (nuclear-powered satellites). For comparison, the International Space Station orbits in the 300–400 kilometres (190–250 mi) range, while the two most recent large debris events—the 2007 Chinese antisat weapon test and the 2009 satellite collision—occurred at 800 to 900 kilometres (500 to 560 mi) altitude. The ISS has Whipple shielding to resist damage from small MMOD; however, known debris with a collision chance over 1/10,000 are avoided by maneuvering the station.

HC/RO Anuj

Quiz

- 1. The DOGE-1 Mission to the Moon will be launched by which company in 2022?**
 - A. SpaceX
 - B. ISRO
 - C. NASA
 - D. Roscosmos
- 2. The creation of cryptocurrency 'Dogecoin' was inspired by which of these creatures?**
 - A. Dog
 - B. Monkey
 - C. Parrot
 - D. Squirrel
- 3. NASA's OSIRIS-REx spacecraft has begun its 2-year journey back to Earth after collecting samples from which asteroid?**
 - A. Bennu
 - B. Ceres
 - C. Vesta
 - D. Juno

4. **The first-ever 3D printed house of India has recently been inaugurated by Union Finance Minister Nirmala Sitharaman at which place?**
- A. IIT Delhi
 - B. IIT Bengaluru
 - C. IIT-Madras
 - D. IIT Kanpu
5. **Microsoft has opened its new IDC facility in which city?**
- A. Faridabad
 - B. Mumbai
 - C. Surat
 - D. Noida
6. **What is the name of India's first social media app named launched by Vice President Venkiah Naidu?**
- A. Milap
 - B. Chatmat
 - C. Connect
 - D. Elyments
7. **AIIMS doctor along with a team of IIT-Delhi students have developed which app which enables users to track willing plasma donors who have recovered from Covid-19?**
- A. COPAL-19
 - B. COVIL-19
 - C. COPLA-19
 - D. PLACO-19
8. **Which of the following launched India's First Service Audio Service 'Suno'?**
- A. Netflix
 - B. Audible
 - C. Google
 - D. Facebook

9. **Which item has been banned by the Directorate General of Civil Aviation while travelling in planes?**
- A. MI Phone
 - B. Samsung Charger
 - C. Lenovo Laptop
 - D. Apple Mac Book
10. **Where is the world's largest underground pumping house being built?**
- A. West Bengal
 - B. Croatia
 - C. Tamil Nadu
 - D. Telangana

Acknowledgement

We are highly thankful for reading out this compilation and hope it will be use full for you in our day today professional and personal life .We would like to hear your interest areas, suggestions from you to make this newsletter more informative and interesting. Your views will definitely help us to create this newsletter as an effective medium to reach you with latest development in the fields of communication and technology.

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A	A	A	C	D	D	A	B	D	D