



INTERNET OF THINGS

'The next big thing'



You Bits
presents

DCS - UBIT
Newsletter 2016

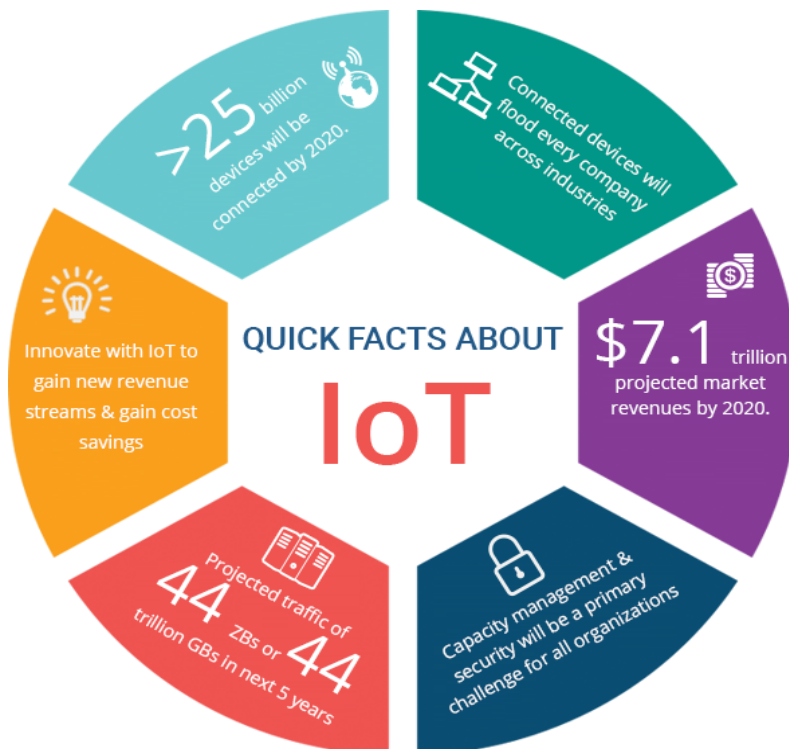
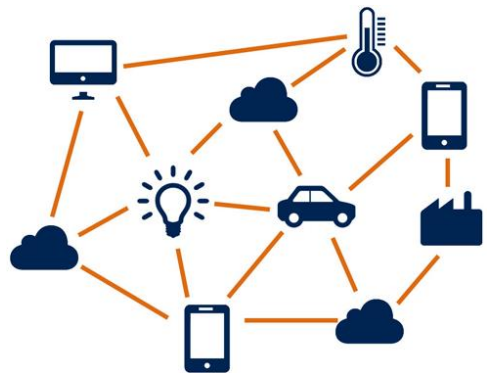
The "Internet of Things"

Is a phrase that 87% of people
haven't heard of

When people talk about "the next big thing," they're never thinking big enough.
It's not a lack of imagination, it's a lack of observation.

The Internet of Things revolves around increased machine-to-machine communication; it's built on cloud computing and networks of data-gathering sensors; it's mobile, virtual, and instantaneous connection; and they say it's going to make everything in our lives from streetlights to seaports "smart."

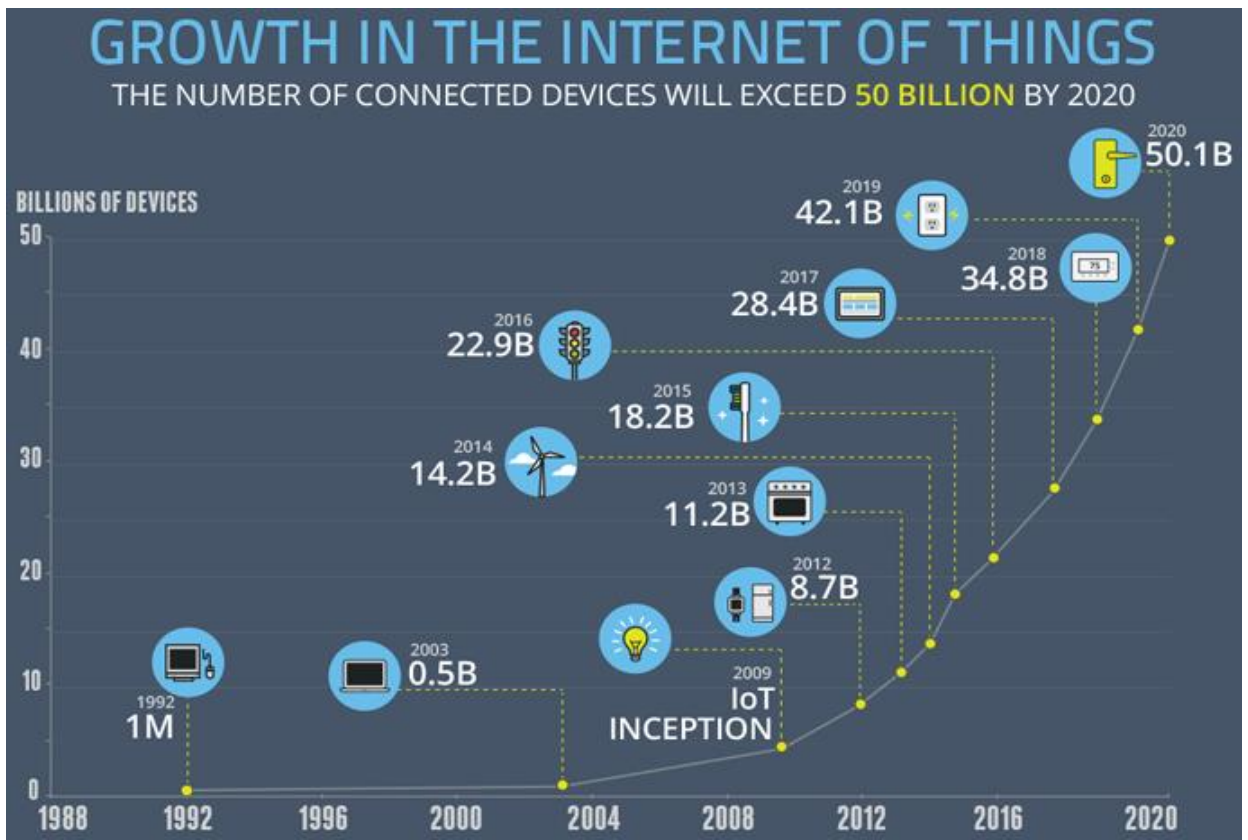
A thing, in the Internet of Things, can be a person with a heart monitor implant, a farm animal with a biochip transponder, an automobile that has built-in sensors to alert the driver when tire pressure is low, an led flash bulb at corner of the street-- or any other natural or man-made object that can be assigned an IP address and provided with the ability to transfer data over a network.



Quick Facts

- The term 'Internet of Things' was first used by Kevin Ashton in 1999.
- ATMs are considered some of the first IoT objects, and went online as far back as 1974.

Internet of things - Facts



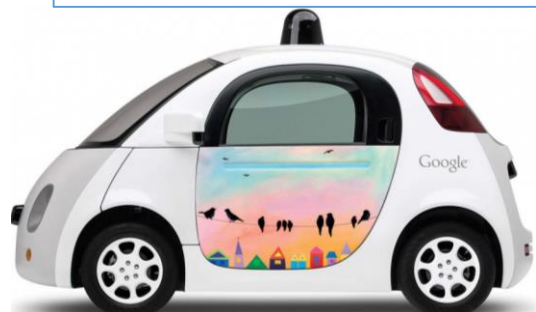
Top companies (social ranking)

1. Intel (72%)
2. Microsoft (69%)
3. Cisco (66%)
4. Google (59%)
5. IBM (55%)
6. Samsung (34%)



Top Projects

1. Google's Self-Driving Car
2. Smart Home-Automation
3. e Home-Delivery System
4. WiFi





Tech Busters



- **Immune Engineering**
Genetically engineered immune cells are saving the lives of cancer patients. That may be just the start.
- **SolarCity's Gigafactory**
A \$750 million solar facility in Buffalo will produce a gigawatt of high-efficiency solar panels per year and make the technology far more attractive to homeowners.
- **Power from the Air**
Internet devices powered by Wi-Fi and other telecommunications signals will make small computers and sensors more pervasive.

Gamers Den



- **Call of Duty: Infinite Warfare** launches this year on November 4 for PS4, Xbox One and PC. This time all the nations have united together in order to begin space colonization.
- **Mirror's Edge Catalyst** releases on 7th June this year, a first person action/adventure game exploring the city by hopping the rooftops. But this time the game real, when the game is ported to Virtual Reality (VR) platform.
- **Minecraft** (craft, create, and explore) – created in 2011 for PC, but now it is available on every platform from PC, Console and Mobile. The game lets you create you own world just by using simple blocks, the game moved to HoloLens and everything is happening right in front of you.

Apps Hub



- **WhatsApp Messenger**
6 years after the release, this messenger still dominates the mobile communication platform, leaving behind Line, Viber, Messenger and Skype which serves for a particular interest.
- **Giphy**
Giphy technically existed as an extension to Facebook Messenger but April saw a time of great change for the app. capable of searching for GIFs and sharing them just about anywhere that you want
- **Encode**
A free mobile application, to teach basics of programming to beginners.



Interviews Section

Muhammad Faizan



Batch 2012-2015

Web Application Developer
Employed at MarketLytics

Q1. How did your experience at DCS-UBIT help you find your first position after graduation?

I was offered quite well positions, I am still getting so many offers, though I still look for best ones, It was good, for the people who take money as success, it was really great starter as a job. Loved the view from the office, it was on 13th floor, the top floor it was and the office didn't have window but whole wall was a window :D. I found it amazing to view city directly from my office.

Q3. If you had it to do all over again, what would you do differently?

Aaaah ! I missed Microsoft Imagine Cup, only in rest of the competitions I use to take part, and I so wished that I would have participated in it, but all the people were working on C# and .NET while i was a lone wolf of OPEN SOURCE. Also my friends were a great barrier they hardly participated in Any competition, I can say they weren't motivated at all, So I couldn't even team up with them. There is no opportunity that or service I didn't explore. I took them to the fullest. :)

Q2. How well our department prepares our graduates for the market?

Well quite well I must say, it gives you a great launch pad, believe me, I have done a LITERAL RESEARCH on that.. :) But I am seeing a general lack of passion in recent batches, may be they fear, may be they don't target, I wont loose anything, but the thing is they would miss a lot, if they miss the opportunity, I think if You can buy a 200 Rs. Zinger for one time meal, then you can also spend a little from your pocket to learn something. Although quite a lot of certification and knowledge is free on the internet.

Q4. What would you look for if you were in the position to hire new graduates from DCS-UBIT?

I actually hired people from my class and from UBIT, because of same department, we look for passion and ability to learn, rest can be taught and trained.

Q5. What else do I need to learn? What particular teachers will provide a good roadmap to us in our field?

Your inner teacher would find you a great roadmap, this is the most common question, where to go and what to do? But ask yourself if You are in 3rd year, what have you found interesting, I selected what I would do in 2nd year and I kept on doing that. so pick one the earlier you pick the more time you can spend practicing it. So when you graduate, You can say to your interviewer that: "I had keen interest in learning ABC technology and I have 2 years of working experience over it. and I have made this and that project, and I struggled making this one, and this one is unique..." Or You can say: "Sir I just did my assignment please give me any job I will learn.."

Muhammad Khurram



Batch 2006-2009

Lead Programmer Analyst
Employed at Jubilee Life Insurance

A line for the students at UBIT

“It is one of the best career platform which will shine the student future in professional way. It's advice for all student, do make your aim before passing out and get the most of it after graduation“

Quote of the Day



*“Good, better, best. Never let it rest.
Till your good is better
and your better is best“*

- St. Jerome



Articles Section

Big Data

Big data is a term that describes the large volume of data - both structured and unstructured - that inundates a business on a day-to-day basis. But it's not the amount of data that's important. It's what organizations do with the data that matters. Big data can be analyzed for insights that lead to better decisions and strategic business moves.

Why Is Big Data Important?

The importance of big data doesn't revolve around how much data you have, but what you do with it. You can take data from any source and analyze it to find answers that enable 1) cost reductions, 2) time reductions, 3) new product development and optimized offerings, and 4) smart decision making.

When you combine big data with high-powered analytics, you can accomplish business-related tasks such as:

- Determining root causes of failures, issues and defects in near-real time.
- Generating coupons at the point of sale based on the customer's buying habits
- Recalculating entire risk portfolios in minutes.
- Detecting fraudulent behavior before it affects your organization.

Factors and Considerations of Big Data

Volume. Organizations collect data from a variety of sources, including business transactions, social media and information from sensor or machine-to-machine data. In the past, storing it would've been a problem – but new technologies (such as Hadoop) have eased the burden.

Velocity. Data streams in at an unprecedented speed and must be dealt with in a timely manner. RFID tags, sensors and smart metering are driving the need to deal with torrents of data in near-real time.

Variety. Data comes in all types of formats – from structured, numeric data in traditional databases to unstructured text documents, email, video, audio, stock ticker data and financial transactions.

Who Uses Big Data?

- Banking
- Government
- Manufacturing
- Education
- Health Care
- Retail



Where Big Data Comes from?

Social Media Data

The data on social interactions is an increasingly attractive set of information, particularly for marketing. Sales and support functions. It's often in unstructured or semi structured forms, so it poses a unique challenge when it comes to consumption and analysis.

Publicly Available Sources

Massive amounts of data are available through open data sources like the US government's data.gov, the CIA World Factbook or the European Union Open Data Portal.

Streaming Data

This category includes data that reach you IT systems from a web of connected devices. You can analyze this data as it arrives and make decision on what data to keep and further analyze based on requirements.

Also after the boom of IoT platforms this data volume has increased a lot higher as devices talk to each other independently and shares data.

Who Does Work on Big Data?

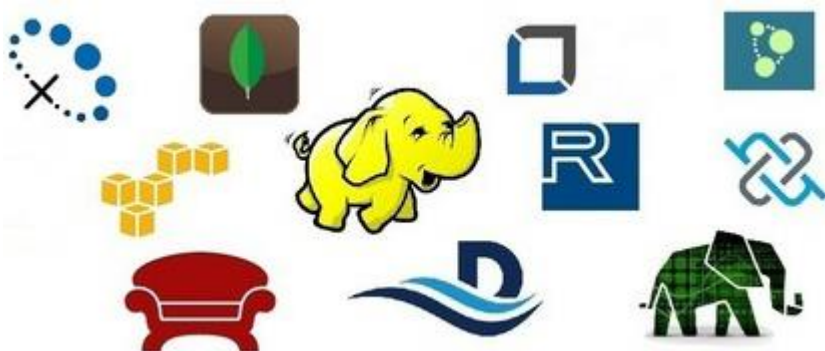
Data Scientist use their data and analytical ability to find and interpret rich data sources; manage large amounts of data despite hardware, software, and bandwidth constraints; merge data sources; ensure consistency of datasets; create visualizations to aid in understanding data; build mathematical models using the data; and present and communicate the data insights/findings.

4.4MILLION
data scientists
needed by 2016



Big Data – Platforms and Tools

The software tools help data scientist to manipulate the data sets.



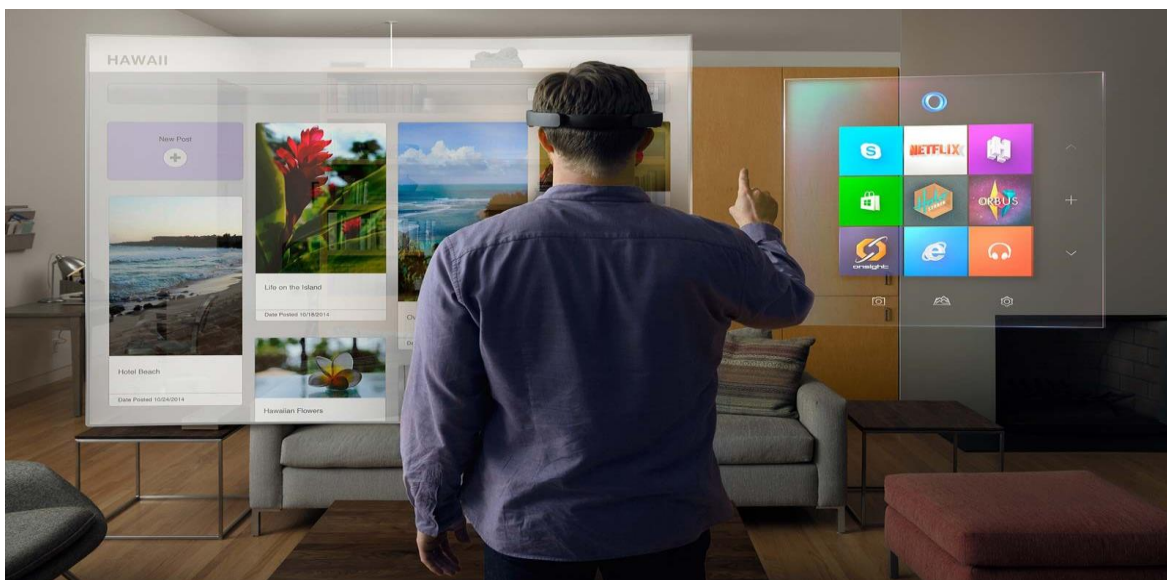
- Apache Hadoop
- Skytree Server
- Splunk
- Pig
- ZooKeeper
- Mahout
- Avro
- Spark
- R Language

Virtual Reality vs Augmented Reality

One of the biggest confusions in the world is to Understand the difference between augmented reality and virtual reality. Both are earning a lot of media attention and are promising tremendous growth. So what is the difference between virtual reality vs. augmented reality?

Augmented Reality

Researchers and engineers are pulling graphics out of your television screen or computer display and integrating them into real-world environments. This new technology, called augmented reality. Augmented reality is changing the way we view the world -- or at least the way its users see the world. Picture yourself walking or driving down the street. With augmented-reality displays, which will eventually look much like a normal pair of glasses, informative graphics will appear in your field of view, and audio will coincide with whatever you see. These enhancements will be refreshed continually to reflect the movements of your head. Similar devices and applications already exist, particularly on smartphones like the iPhone and Android. And also well know MS HoloLens.



AR technology is quickly coming into the mainstream. It is used to display score overlays on telecasted sports games and pop out 3D emails, photos or text messages on mobile devices. Leaders of the tech industry are also using AR to do amazing and revolutionary things with holograms and motion activated commands.



Virtual Reality

Virtual reality (VR) is an artificial, computer-generated simulation or recreation of a real life environment or situation. It immerses the user by making them feel like they are experiencing the simulated reality firsthand, primarily by stimulating their vision and hearing.

VR is typically achieved by wearing a headset like

Facebook's Oculus equipped with the technology, and is used prominently in two different ways:

To create and enhance an imaginary reality for gaming, entertainment, and play (Such as video and computer games, or 3D movies, head mounted display).

To enhance training for real life environments by creating a simulation of reality where people can practice beforehand (Such as flight simulators for pilots).

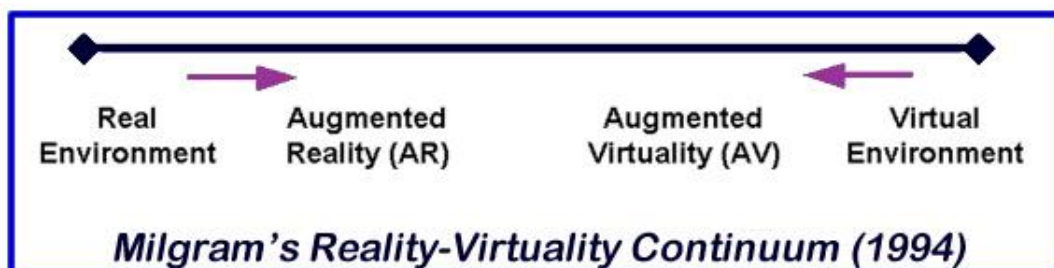
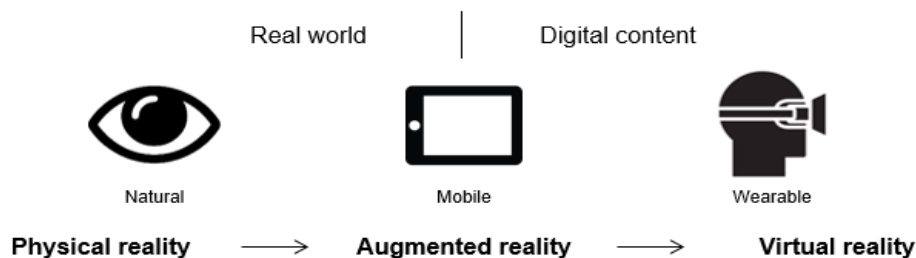
Virtual reality is possible through a coding language known as VRML (Virtual Reality Modeling Language) which can be used to create a series of images, and specify what types of interactions are possible for them.



Virtual Reality vs Augmented Reality

Augmented reality and virtual reality are inverse reflections of one in another with what each technology seeks to accomplish and deliver for the user.

- Virtual reality offers a digital recreation of a real life setting.
- Augmented reality delivers virtual elements as an overlay to the real world.



Role of Graphic Designing in Business World

“Graphic Design is something which drives advertising and attracts us to brands. That is why it is said Graphic Design is one of the key factors of a good business venture”

Graphic designs are present everywhere to be found like newspaper, magazines, Packaging, branding, websites, posters, books, signage etc. Graphic Design gives your Company a Face and Visual Presentation that just by looking at it. As the global market shrinks with the ever growing reach of technology the need for that eye catching graphic becomes more and more valuable to a business.. If a company looks professional, your potential customers are more likely to trust that you can deliver. A creative and strong brand will make sure that your clients remember you. A large percentage of people remember what they see far better than what they hear or read.

THE IMPORTANCE OF A GOOD DESIGN FOR YOUR BUSINESS



Graphic design not only makes something look good, it organizes information to help deliver a message in the most impactful way possible. When you combine the right image, a well-written headline, professionally executed in a well-established package, then BOOM! The message hits its target. However, if any one of those parts is missed, the message will likely miss its target too. There's a misconception that graphic design is just "pretty pictures," but it's actually presentation, organization and well-thought-out market concepts that deliver everything in one good-looking package.



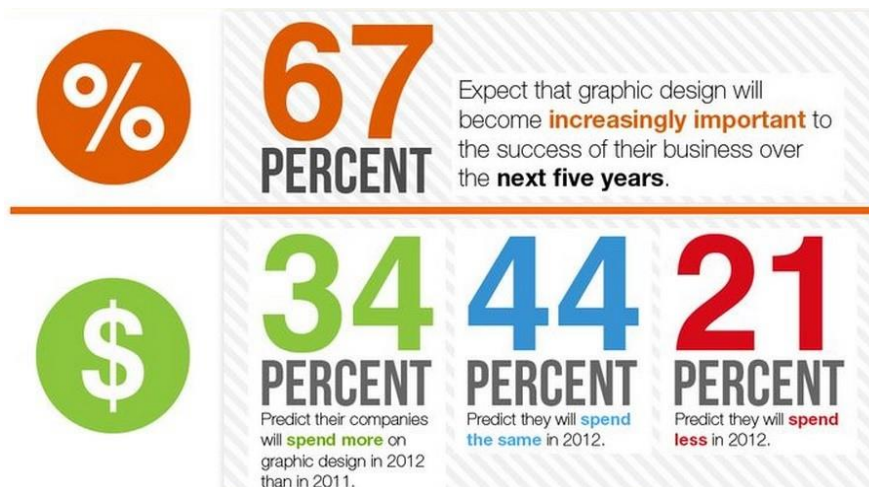
Branding isn't limited to just a company logo. It means putting that logo on everything your company presents as theirs. And not just adding the logo to any old layout/design, but having that ad/email/brochure tie into the brand using the brand's fonts, colors and remaining consistent with the graphic standards that your audience has been used to seeing. Graphic design creates the structure for delivering your message, so that over time, your audience recognizes YOU in every message you deliver. Consistency creates confidence, assurance that you know the brand.

COLOR EMOTION GUIDE



Without the brand consistency, your audience won't necessarily recognize you. In layman's terms, it's as if a friend gets their hair chopped off and colored, then dresses up in drag and shows up at your door expecting you to recognize them. You'll certainly figure it out because it's still them, but they look so different, you're not sure who they are anymore!

Beauty is attractive, we all know that, and graphic design delivers beauty in order to attract the target audience. But in advertising, it's not just about beauty; there is a very small window of time for an ad, email or website to grab the audience's attention before they move onto the next thing. A well-designed marketing piece helps the audience see past the graphics to the message, but it's the appealing graphics that reel them in.



There are three responses to a piece of design — yes, no, and WOW!
WOW is the one to aim for.

– Milton Glaser

The Future of Web Development

Now a days markets are shifting on web and everything is now managed using E-commerce which is only possible by web developers. Web development resides at #20 in top 100 best careers list and is not a highly pay-able but a long lasting career. Since the commercialization of the web, web development has been a growing industry. The growth of this industry is being driven by businesses wishing to use their website to sell products and services to customers. Web development brought markets closer and closer, and now we can buy or sell something just by using web technologies.



There is a vast scope in the web development career and most of the people are trying to select this as a career. As a Web developer one need to have broad-based knowledge, encompassing areas such as:

- Usability and interface design.
- Basic Web skills, such as HTML, CSS and JavaScript.
- Web 2.0 skills, including Ajax.
- Server-side technologies, such as ASP, PHP and Ruby on Rails.
- Databases such as MySQL, SQL Server, Oracle or IBM's DB2.
- Online marketing and search engine optimization.
- Word press and Joomla.



As a Web developer, it is very important not only to be skilled in today's technologies, but also to keep an open eye for future developments and emerging technologies. Other key skills include tasks like gathering requirements and working with clients to review prototypes and designs. If a developer can keep a good attitude, ask lots of questions, gather requirements, set the customer's expectations and handle all the little project things that come up, they're very valuable in the market. Not only E-Commerce, web development is now completely embed in our daily life such as socialization, blogs, encyclopedia, Online video streaming etc..



A new term is introduced in the world which is known as Internet of Things (IoT), which refers to the ever-growing network of physical objects that feature an IP address for internet connectivity, and the communication that occurs between these objects and other Internet-enabled devices and systems. To enable web connectivity between the devices we must have an application running on the devices which is possible through web development only. In short, web development is going to have a remarkable future around the globe.



Internet For Everyone

What is Internet For Us?

The Internet is proving to be one of the most powerful amplifiers of speech ever invented. It offers a global megaphone for voices that might otherwise be heard only feebly, if at all. It invites and facilitates multiple points of view and dialog in ways un-implementable by the traditional, one-way, mass media.

The Internet can facilitate democratic practices in unexpected ways. Did you know that proxy voting for stock shareholders is now commonly supported on the Internet? Perhaps we can find additional ways in which to simplify and expand the voting franchise in other domains, including the political, as access to Internet increases.

Idea - Internet For Everyone

The Internet is for everyone - but it won't be until in every home, in every business, in every school, in every town and every country on the Globe, Internet can be accessed without limitation, at any time and in every language.

The Internet is for everyone - but it won't be if it is too complex to be used easily by everyone. Let us dedicate ourselves to the task of simplifying Internet's interfaces and to educating all who are interested in its use.

PROJECT LOON

Google and Facebook are one of the most prominent companies working on the thought "INTERNET FOR EVERYONE". The Google's project is called project "loon".

It hopes to enhance the web's influence by providing internet to everyone in the world through a series of hot air balloons with attached routers. The balloons that project loon will use will be inflated with Helium and



will use solar energy to operate. They are supposed to be operated through a vertically motioned user interface. Operators will be able to maneuver the balloons around the globe by using winds currents since air currents flow in opposite directions separated by a given vertical distance. Hence, by controlling the balloons altitude, theoretically, it is possible to move the balloons to their rightful location.

Assuming all the mechanisms of the project are functioning as planned, every single person who has access to some device that has Wi-Fi access would be able to search for almost any form of media online. Farmers in remote corners of third world countries would be able to research and analyze multiple techniques that could increase their yield, a father would be able to stay in touch with his daughter no matter which township either one of them lived in.

Credits and References

Group Members

Member Name	Seat Number	Article Topic
M Shaharyar Siddiqui	EP 1450065	Big Data
Syed Ali Hasan	EP 1450107	The Future of Web Development
Abdullah Hanif	EP 1450003	Virtual Reality vs Augmented Reality
Hussain Khan	EP 1450029	Graphics Designing in Business World
Wasi Khan	EP 1450075	Internet For Everyone

Alumni Interviewed

Alumni Name	About
Muhammad Faizan	Graduate 2015, Web App Developer
Muhammad Khurram	Graduate 2009, Lead Programmer Analyst

University of Karachi
Department of Computer Science – UBIT

Organizational Behavior - Newsletter
3rd Year Project
BSSE Evening
2016

Submitted to:
Miss Shumaila Burney