

# protocol

CSI STUDENT CHAPTER, D.J.S.C.O.E



**WEEKEND PROJECT**  
AMBIENT LIGHTING FOR YOUR PC OR HOME THEATRE

**matberg@live.com**  
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Congratulations! I'm really excited to celebrate with you all. Thanks for the ...



13  
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**78° Anaheim, CA**  
Tomorrow 88° / 67°  
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Friday 89° / 62°

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**GOOGLE PLUS EXPLAINED**

HOW ITS DIFFERENT & WHY YOU WILL LOVE IT

**GADGETS & TECH**

GADGETS, SOFTWARES, APPS AND A LOT MORE

MICROSOFT'S LATEST OFFERING

# MOST EXCITING FEATURES WINDOWS 8



## About The Computer Society of India

Formed in 1965, the CSI has been instrumental in guiding the Indian IT industry down the right path during its formative years. Today, CSI has 66 chapters all over India, 381 students branches, and more than 40,000 members, including India's most famous IT industry leaders, brilliant scientists and dedicated academicians. Now, you have the opportunity to be a part of this distinguished fraternity too.

The mission of CSI is to facilitate research, knowledge sharing, learning and career enhancement for all categories of IT professionals, while simultaneously inspiring and nurturing new entrants into the industry and helping them to integrate into the IT community. CSI is also working closely with other industry associations, government bodies and academia to ensure that the benefits of IT advancement ultimately percolate down to every single citizen of India.

## From The Chairman Of CSI

As the Chairman of CSI, I would like to thank Prof. Abhijit Joshi, Prof. Neepa Shah and the entire faculty of IT department. It is because of their tremendous support and motivation, that CSI has been able to live up to its full potential. I also want to thank my committee members who have worked very sincerely and are responsible for the remarkable events conducted by CSI. This semester we have conducted workshops on 'Motion Photography' and '3D-Animation', and a seminar on 'Career opportunities after engineering' which were a huge success. We are confident that we will provide you with such quality workshops in the future also.

- Parth Thakkar

## From The Editor's Desk

Who doesn't love that new gadget smell? The joy of toying with a new Operating System, or of beta testing a new service by one of the biggest names in tech? If you can't relate to this, you have my deepest sympathy and I hope this magazine brings a new dimension into your life. If you do relate to this, I'm sure you've already skipped this page entirely.

We set out to create a magazine to broaden your horizon about the technological world around you. From innovations you can expect in the near future, to breakthrough technology you can get your hands on right now. Compiling all this into one 20 page issue was no easy task, but I believe we achieved what we set out to do.

It is my pleasure to present to you 'Protocol- volume 5'.

- Aaron Brako

## Our Sincere Thanks To

Dr. Hari Vasudevan, Principal  
Prof. A. R. Joshi, Vice Principal (Academics)

Prof. A. C. Daptardar, Vice-Principal (Administration)  
Prof. Neepa Shah, CSI faculty Advisor

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Sunny Patel (FE Computers), Writer  
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# Gadgets & Gizmos

## Raspberry Pi - A Revolution in Low Cost Computing

The world of computing as we know is about to change. And Bringing forth this Revolution is one of the most amazing releases this year; The Raspberry Pi, a revolution in low cost computing. It is already being considered as the new Arduino. It is a 45gm, credit card sized ,single board Linux computer which allows the users to do word processing, play HD videos, play high end games like Quake III, and a lot more.



The device has to be booted using the SD card. However once the device is on, an external HDD can be used over SD card. It runs Fedora. The Linux OS lies in the SD card. Users can install any other Linux OS.

Given the cost and size of the device, the device was considered to be impractical and fairy-talish. No one could imagine, that a computer which originally used to take up rooms of space, can now just fit into your palm. But It was made Possible.

“ And when it launched online on Feb 29th, more than 10,000 units of the 1st batch were sold in less than two hours, crashing their website. The demand reached almost 700 per second ! ”

Raspberry Pi was primarily intended for the education market. The whole idea was conceived as a way to get kids to learn how to manipulate and program computers earlier on. But it was later realized that this device was capable of doing much much more. The project has broadened out from the educational field to adult hobbyists; A lot of people want to build ROBOTS and media centers using it. It can turn your TV into a workable productivity computer.

The Raspberry Pi Foundation doesn't intend to make money off it. While you could easily turn something like this into a fully operational business, the Trustee Eben Upton stated that the Raspberry Pi foundation will remain not-for-profit organization,

After testing, it was found out that the device runs glitch-free even up to a 32gb SD card and was easily capable of running Powerful games like quake 3 and many Blue Ray movies. You can also attach a USB stick or USB hard drive for storage.

Research is also being done to make an Android version that can run it.

“ The system is smaller than most smartphones and comes with Ethernet, HDMI, and two USB ports, and an SD card slot, and it runs off a 700MHz ARM chip with 256MB of RAM, all for \$35 ! ”



The Raspberry Pi foundation wants to open-source the technology so "a company in China can produce a million computers" for developing countries and schools. The foundation expects third parties to start developing Raspberry Pi devices midway through 2012.

To sum it all up, this revolutionary device can do almost everything that a normal computer can do and because of its small size and price, it can achieve much more.

- Vivek Sanghvi Jain (FE Comps)

## ASUS PadFone

Have you ever wanted to own a smart phone and a tablet both? But you couldn't maybe because of the over priced phone market in the country or maybe because of the inconvenience to handle two big devices? Well then this is a thing for you. The Asus Padfone.

How amazing it would be if you could convert your phone into a tablet, any time you want. A leading tech brand Asus announced this wonderful device in the spring of 2011. The device looks exactly like a tablet. But it has a slot for the whole phone of yours which in turn will act as a tablet in moments.

### TECHNICAL SPECIFICATIONS

- 9.2mm thin
- Sporting a 4.3-inch Super AMOLED qHD display
- Snapdragon S4 with the new Adreno 225 GPU
- 8MP camera with LED flash and f/2.2 aperture
- 16-64GB of internal storage plus microSD slot
- HDMI
- Wifi
- Bluetooth
- GPS

### OTHER FEATURES

- Huge 10.1" display powered up by the phone itself
- Slot for a detachable keyboard
- Stylus which also acts as a headset
- Video conferencing supported

One question that might be arising in one's mind is that how is it really different from a usual tablet. Well it is definitely different. Even if you had a phone and a tablet both you might not have the same data in both of them.

While using the tab you will miss the data of your phone and vice versa. But using this padfone you don't have any tedious task like syncing again and again. All you need to do is plug your phone inside the tablet and now you have all your data which was on your 'phone', on a 'tablet'.



And the padfone doesn't stop there. You can also turn the tablet into a small notebook by attaching the Asus Station Dock keyboard. Like with the Transformer Prime, the keyboard will snap onto the bottom of the tablet for your typing needs.

Aren't all these specs and features impressive? The only question now is the cost of the device and the release date. Though it is rumoured to be around a 600\$. People are showing different responses on this cost. Some say who would want to spend 600\$ on this device when you can buy the iPad. But some also look at it as a good deal, 600\$ for a phone, a tablet and a notebook, all in one. What's your take on this? We don't yet know how well it is going to perform from a user's point of view, but it will definitely attract some of the buyers looking for a tab and a phone both at a time.

- Sunny Patel (FE Comps)

## PowerPot

The PowerPot is electricity generating pot which will allow you to charge any device, power lights or listen to music while heating up a pot of water or cooking anything.

### APPLICATIONS

**It Charges Anything:** Charging almost any device: LEDs, lanterns, satellite phones, GPS units, UV water purifiers and rechargeable battery packs, mobile devices etc.

**Emergency Preparedness:** Its perfect for your 72-hour kit. You can keep charging no matter what happens!

**Camping:** A power pot can replace pounds and pounds of extra batteries on camping trips. For the truly adventurous, getting lost is sometimes inevitable! Having a portable GPS, cellphone, or satellite phone charger in a tight situation can literally be a lifesaver.



## Nokia Kinetic

Who is the best cell phone manufacturer? Whom do you trust the most when it comes to phones?

A few years ago the obvious answer was Nokia, remember that? In the past few years cell phone industry has grown tremendously, with new devices, new companies, new OSs and new apps almost daily.

The biggest names are Apple, Google, Samsung etc. We all know that Nokia did disappear somewhere in this. Still known for its durability, Nokia has not really managed to attract customers as it used to. Nokia's Symbian OS is nowhere compared to Android and the much loved, iOS. Recently Nokia launched the new windows phone series, Lumia, apparently a good phone from Nokia after a long time. Well definitely Nokia wants back its charm it had. And hence they came up with a new concept phone or a future phone-Nokia Kinetic.

Nokia Kinetic is one of the breath taking concepts. Its a phone, a bendable phone. Yes you heard that right, it was hard to imagine such a thing but now its true. The device has a kind of rubber body with an OLED flexible display.



You have control over the power output of the system by choosing the intensity of the heat source you use. Using a moderately intense flame and water that is cooler than boiling you can maximize power generation and achieve power output of 5 W. With 5W of electricity you can provide far more lighting for a camp than a campfire would. The power regulator included with the PowerPot generator uses the best available technology to efficiently and safely transfer energy to your mobile device.

PowerPot isn't being produced full scale just yet, but

In fact, one has to bend it in order to navigate through its interface. Scroll photos and music by bending the device in opposite directions or bend it inward or outward if you want to control its zoom function or media playback. Nokia mentioned that in the future, the UI can be used to answer or end a call by squeezing or relaxing one's grip on the handset.

**“This goes beyond the touchscreen, but there's no intention to replace it. This is multi-modal.”**



The prototype is made by Nokia Kinetic Labs and reminds us of the Synaptics Fuse concept last year. However, the Nokia Kinetic concept differs itself from the Fuse by providing a bendable display instead of just using sensors. No word if the UI will be integrated to an actual consumer handset anytime soon, but Nokia pointed that its flexible UI could be placed on top of any current OS.

The world and the experts are looking forward to this phone as it is so far the most unique concept. Hopefully it will not disappoint people, as Nokia has been doing recently.

- Sunny Patel (FE Comps)

they do have a prototype. If you pledge \$99 or more, you can get your own PowerPot when they scale production. There's a variety of models available at higher price points as well.

It may not be the most revolutionary step forward in energy technology, but the PowerPot is just the kind of innovative solution we need to make our increasingly power-hungry lives possible and sustainable.

**VIDEO:** [www.is.gd/g7LEbz](http://www.is.gd/g7LEbz)

**MORE INFO:** [www.is.gd/X9WJGd](http://www.is.gd/X9WJGd)

- Vivek Sanghvi Jain (FE Comps)

# Why you will love Google Plus

Google plus is here to stay !

At a time when facebook is at pinnacle of its glory with close to a billion users , Google the godfather of the internet decided to launch its own social network. Google has time and again tried to foray into the market of social networkin, first with Orkut and then with Buzz and wave. Though one unsuccessful than the other, the lords at the Google HQ were not ready to give up and under the leadership of one Vic Gundotra Google plus was launched on June 28, 2011.

Now one might argue that the world doesn't need another social network when users are already plugged into the facebook system and don't want to leave it. However, G+ comes with some distinguishing features that just might change your mind. So, lets start by listing them one by one.

## CIRCLES

Unlike Facebook friendlist where every relationship is a friend or not. G+ has circles. Circles can be described as a real life filter that you use to distinguish between the people you interact with. For example your family, school friends, college friends, colleagues, your boss, teachers etc. They are not all your friends and you don't want to share all your content with everyone. Hence, you just put them in deicated circles and now you have control over the content that you share.

You can choose to share your posts to everyone, specific circles or even particular people. And it's so easy and intuitive, there's hardly any learning curve at all !



## HANGOUTS - VIRTUAL MEETINGS

You can't deny how annoying walling on Facebook can be. Let alone the privacy part, but when you and another friend are trying to have a conversation, you'll find somebody else bumping right into it. To avoid this, you may resort to sending messages over to your friend's Facebook inbox.



“ And it's so easy and intuitive, there's hardly any learning curve at all ! ”

You can put people in your circles and the other person doesn't have to accept it, similar to 'following' someone on twitter, so you only see posts that the other person has shared publicly. As a result the privacy nightmares of facebook of what someone can and cannot see are considerably reduced and in most cases eliminated completely.

Also the facebook video chat is a major letdown. Nobody uses it and it is one of the features that is just there.

The Google Plus feature called 'Hangouts' is a life-saver for all those who are waiting for the technology of teleporting to arrive. For the very first time, unplanned bumping into each other is introduced online. Google Plus lets you select your favorite people

or a complete circle to know that you are hanging out. These specially chosen people can drop by to have a face-to-face chat with you if they wish and if they are also online at the same time.

People around the globe have used Hangouts for amazing purposes, from broadcasting live concerts to interview with Barack Obama ! Musicians have been discovered, People have been hired for jobs just by interacting face to face with each other. If you have not checked it out, you are missing a lot of fun.



## UPLOADING PHOTOS AND VIDEOS



One of the major plus of facebook is that it provides unlimited storage for your photographs online. However uploading each photo manually is a bit of a chore.

In a hassle, we tend to make mistakes and the wrong people view the wrong pictures.

Google Plus' feature that is known as Instant Upload, makes the job twice as easy and twice the fun. It automatically gets your photos and videos from your phone uploaded on a private album. You only have to choose whether you want to share it or not and with whom. You can even save the photos and videos to share later. Doesn't it sound like such a breath of fresh air? Also the storage is unlimited with no ads at all !

## CONTROL YOUR CONTENT

And finally better control on what you see in your posts. Facebook controls your news feed. For those of you who didn't know this, pay attention. Facebook uses an algorithm called 'EdgeRank', where depending on your likes and interests it decides what content to show you in your news feed as a result you miss a lot of great content from people with whom you are out of touch.

Also because of this our activity streams look like a never ending circus act with continuous updates from annoying fan pages and games that we like. We can't turn off the freak show, we can only wade through the exhibits until we find one or two that we're interested in.

For me, this is boring, semi-useless and a time-waster.

My news feed is populated with useless updates. There is just too much noise for me to handle.

Google+ has approached it differently. They allow you to filter content by circles. Think of these circles as a ten (more or less) ring circus where one can simply tune into the acts and people for which they have an interest.

In G+ I control what content I see, this allows for better discovery of new items. Some might argue that it is a chore to go through your feed for interesting feed. Well, if social network is a chore for you, you shouldn't do it in the first place.

In conclusion, I think G+ is the new hip thing that people should give a try for considerable amount of time before discarding it. If facebook is for maintaining existing connections, Google plus is about making new ones. You'll discover amazing new things, just give it a chance.

- Aradhya Tulsyan (TE IT)

# Emerging Technology

## LTE

We have come across various terms like GPRS, EDGE, HSPA(3G). But now we are going to come across 4G which is nothing but a short form given to LTE (Long Term Evolution).

### WHAT EXACTLY IS LTE ?

LTE is the 4th Generation network which will allow smartphones to connect to your emails, messages, phone calls, gps signals at high speeds. Currently it provides a max download speed of 100 Mbps.

### HOW DOES IT HELP US ?

- LTE is one big revolution since it brings live HD streaming to your mobile phones.
- LTE also takes online multiplayer gaming on mobile phones to the next level by providing better graphics while playing.
- Better sound quality while talking on phone.
- LTE brings broadband to mobile phones.
- LTE connects to internet within a second or two
- LTE can be made compatible with CDMA & GSM. CDMA can work on as low as 800 MHz while GSM can work on as low as 700 MHz.
- LTE can work at a very low spectrum i.e. 700 MHz at the moment which basically means better network coverage, so less call drops.

### WHICH DEVICES WILL USE LTE ?

Since LTE has recently been launched, we can expect all new smartphones to come in LTE. We can also

expect Notebooks and Laptops to get LTE support.

### WHAT ABOUT LTE IN INDIA ?

Airtel will launch LTE in Karnataka in April 2012 followed by Karnataka, Punjab and other parts of India in Q3 of this year. It will be provided at a very high spectrum of 2600 MHz.

Since 4G-enabled smartphones aren't yet available in India, the Bharti Airtel LTE network will be initially only be used with 4G USB dongles, which will enable connecting your laptop or tablet to the fast network. Manufactured by ZTE, the 4G dongle will be priced at 7,999INR (\$155), which seems rather steep, though.

If, however, you still want to use 4G on your smartphone, you'll have to wait until the end of 2012 when some LTE-enabled devices like HTC Evo 4G, Motorola Droid RAZR Maxx, Samsung Galaxy Nexus, Samsung Galaxy S II Skyrocket and HTC Sensation 4G will be hitting the Indian market.



### RELATED VIDEOS

- <http://goo.gl/ZkWKr>
- <http://goo.gl/fkAWC>
- <http://goo.gl/ebJCj>

### READ MORE ABOUT LTE

- <http://goo.gl/XqrCo>

- Nayan Seth (FE Comps)

## Capture a clear view



It's a familiar scenario. You're trying to take a picture of somebody in front of a famous monument, and there's a continuous stream of people and vehicles coming in and out of your shot. The Scalado Remove App uses patented object removal technology to remove unwanted objects from your photographs. It even highlights objects so you can tap to manually remove them. (iOS, Android)

## Pool-friendly bluetooth speakers

A spherical, wireless waterproof, bluetooth speaker that floats in your pool. It's called the Splash 100 and comes from Behringer, a German audio company. It comes out later this year, and will retail for 99\$. It will allegedly have a 230-foot range (via a 900MHz RF signal) and deliver 3.5 hours of sound from its rechargeable battery.





## OLED

Recently we have come across large number of devices using LEDs but what exactly are we going to have after LEDs. Well the answer is pretty simple, we are going to have OLEDs.

### WHAT CAN IT PROVIDE US ?

- OLED & LED might sound alike but the processes are completely different. OLED stand's for Organic Light Emitting Diode, with organic referring to carbon film. OLED emit their own light when an electric current is passed through it. Hence OLED do not require backlighting (light from back). Hence power consumption is low.
- OLED are brighter than LED's, hence they provide better brightness levels on display screens.
- Till now we have heard and seen of 75 inch TV using LED but can we actually have a screen larger than that. The problem is when we actually increase the screen size the picture quality starts deteriorating. Well it is possible now with the use of OLED. Recently LG launched a 84 INCH OLED TV. So basically OLED can be used to make larger displays.
- OLED provide better viewing angles.
- OLED help in making extremely thin & transparent displays. (Currently the thinnest display is just 4mm. The 55 INCH LG OLED TV - <http://goo.gl/NYe0H>)
- The response time of OLED is much better than LEDs and they are almost 1000 times faster than LEDs

### THE PROBLEM WITH OLED ?

OLED seems to be the perfect technology for all types of displays, but it also has some problems:

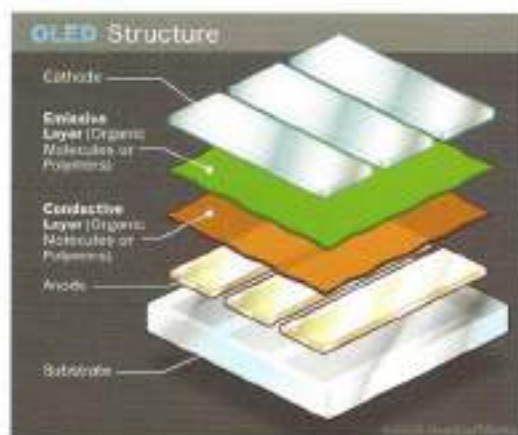
- Lifetime - While red and green OLED films have

longer lifetimes (46,000 to 230,000 hours), blue organics currently have much shorter lifetimes (up to around 14,000 hours).

- Manufacturing - Manufacturing processes are expensive right now.
- Water can easily damage OLEDs.

### WHICH DEVICES USE OLED ?

All those high end samsung galaxy phones use AMOLED screens which is a part of OLED. OLED TV should start rolling out by mid 2012.



### FUTURE BEYOND OLED ?

Well we have already seen lot of improvements in display screens but this is just the beginning and its about to become better in the near future. There are prototypes of foldable screens that can be rolled up into a tube. So expect something amazing in the near future.

### RELATED VIDEOS

<http://goo.gl/FWDWM>

<http://goo.gl/KZLK>

### READ MORE ABOUT OLED

<http://goo.gl/lfLpv>

- Nayan Seth (FE Comps)

## Samsung Smart Window



What do you get when you combine a window, a touchscreen, apps and widgets. You get the Smart Window from Samsung. One of many interesting feature is "blinds" which lets you swipe your finger, to open and close virtual blinds that actually blot out the light. It is illuminated by natural light during the day, thus saving power, and falls back to LEDs in the dark. Production is due to begin in a few months. No word on price.

## Google Drive

Google Drive lets your store all your stuff online, so that you can access it anywhere, anytime. As you would expect, its streamlined with existing services



as Google docs and Google +. All documents can be shared with specific people or publicly, and can be edited by multiple people simultaneously. Also, files of almost any format, including video, Photoshop and Illustrator can be viewed right in the browser. The free plan offers 5GB of storage. Take that, Dropbox !

## 3D Printers

We all know that printers are used to print pages either in color or black and white. But today with the help of 3D Printers, we can actually print 3D objects using a 3D printer and 3D modelling software.

### HOW IT WORKS

There are a variety of very different types of 3D printing technologies, but they all share one core thing in common: they create a three dimensional object layer by successive layer, until the entire object is complete.

Each of these layers is a thinly sliced, horizontal cross-section of the eventual object. Imagine a multi-layer cake, with the baker laying down each layer one at a time until the entire cake is formed. 3D printing is similar, but just a bit more precise than 3D baking.

3D printing is an additive process, not a subtractive one. Consider this: A sculptor begins with a block, that he transforms into a sculpture by chipping away unneeded pieces. 3D printing, on the other hand, begins with nothing, creating only the pieces it does need.

“Essentially, A 3D printer lets you print THINGS!”



So, why haven't you heard of this yet, you ask? Its because 3D printers are really really expensive. Believe it or not, but companies have been using them for years now.

Nike uses 3D printers to create multi-colored prototypes of shoes. They used to spend thousands of dollars on a prototype and wait weeks for it. Now, the cost is only in the hundreds of dollars, and changes can be made instantly on the computer and the prototype reprinted on the same day. Other companies use them for custom manufacturing, where the printed objects are actually end products!

3D printing service bureaus like Shapeways and Ponoko that can very inexpensively print and deliver an object from a digital file that you simply upload to their website.

Even if you don't design your own 3D model, you can still print some very cool pieces. Model repositories such as Thingiverse, 3D Parts Database and 3D Warehouse that have model files you can download for free.



While commercial printers offer many features such as multiple colors, different materials to print with, faster print speeds, they cost into the tens of thousands of dollars.

Personal printers, offer limited features, but can be had for as little as 300 - 2000\$, and they are only going to get cheaper.



The MakerBot, debuted at CES 2012 won multiple awards for its functionality and price point. The regular version costs \$1750, while a dual-color capable version will set you back \$2000.

“3D Printing is a Game Changer”

Instantly printing parts and entire products, anywhere in the world, is a game changer. But it doesn't stop there. 3D printing will affect almost every aspect of industry and our personal lives. With effects on energy use, waste, customization, product availability, art, medicine, construction, the sciences and of course manufacturing. It will change the world as we know it. before you know it.

- Nayan Seth (FE Comps)

# Useful Browser Extensions

## BugMeNot

Want to read this article? Register by filling out this simple (not really) form, then check your email and confirm your registration. Sound familiar?

BugMeNot is your way out.



The browser extension is as friendly and true to its words as is its name!

BugMeNot will provide you with disposable login details for a number of websites that ask you to sign up. Most of the times when working online, you are directed to a plenty of websites which are definitely useful to you, but at the same time you very well know that is going to be your first and last visit to the website.

BugMeNot provides you with login details and hence you can access the website without wasting time in the sign-up procedure, and without the risk of spam!

You can simply visit bugmenot.com, or install the browser extension if you're going to use it often. It is fast, convenient and saves a lot of time and effort.

### Log In Now

Member ID or E-Mail Address:

Password:

[Forgot Your Password?](#)

Remember me on my computer.

Light

Cut

Copy

Paste

Print

Select All

Add a Keyword for the Search...

Spell check this field

Font Finder

Log in with BugMeNot

## Historify

Have you ever found something interesting online and then wanted to come back to it days later but couldn't find it any more? Bookmarks are not very effective because the sheer number and variety of websites we visit makes bookmarking a logistic nightmare.

Historious exists to help with this exact scenario.

It is basically a social bookmarking search engine for sites you like. Add ('Historify') a site using the bookmarklet (it works with all browsers, even your phone's!), the browser extensions or manually, then come back to the site and search your historified sites just by entering some keywords!



“ A social bookmarking search engine. Think of it as a cross between Google and your bookmarks folder. ”

Essentially, you are able to search for keywords, similar to google, except that its limited to your bookmarks. Pure genius. You can tag your bookmarks with keywords to better organise them. It even maintains a 'cached' version of the page as of the time you bookmarked it, so you can view the page as you saw it, even if it doesn't exist anymore. All your bookmarks are stored online, and are thus accessible anywhere.



Historious is what regular bookmarks should have been. Organized, efficient and simple to use. There's no reason you shouldn't try it out.

- Priyanka Dalvi (SE IT)

# Windows 8 : Radically Different

Lets be clear, Windows 8 isn't Windows 7 plus a few features, tweaks minus a few bugs and glitches. Windows 8 is a completely reimagined version of windows, built from the ground up, and is probably Microsoft's biggest leap forward since Windows 95.

Windows 8 isnt due until October this year, but the consumer preview (available for download, free, on Microsoft's website) has been out for a while now, and is already provoking positive reactions from thousands of people.

## Windows 8

The Windows logo too has been redesigned

Windows 8 introduces Microsoft's radically new Metro UI. Designed to run on desktops, tablets and mobile phones alike, it is clear that it will change the way you use your devices for the majority of the next decade.

In accordance with the unprecedented popularity of the touch screen, Metro UI is specifically designed for use with touch enabled devices. Fear not, PC users, Metro remains completely usable and functional even with a keyboard and mouse.

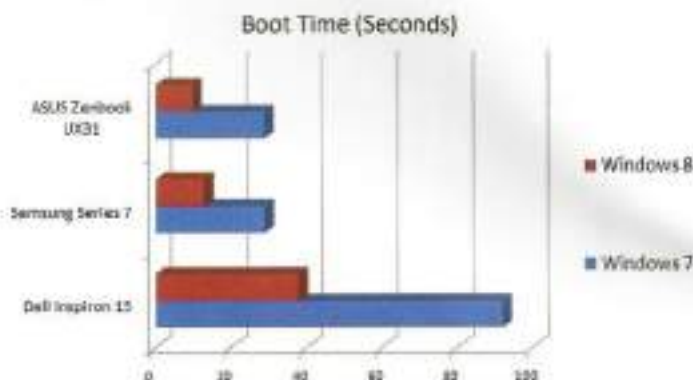
There's plenty of new features packed into Windows 8. We'll list some of our favourites.

### PERFORMANCE INCREASE

You will wonder whether the new interface will bog Windows down

with more running processes, and whether running a full Windows desktop on a low-powered tablet was really a good idea.

Microsoft knows your fears, and has addressed them: Windows 8 is slated to have better performance than Windows 7, even with this metro interface running on top of a desktop. Boot times are also significantly reduced.



### THE LOCK SCREEN

The lockscreen features a beautiful picture along with a few little widgets for useful info such as the time, number of emails, and so on.

It also has a neat little "picture password" feature. Instead of using a PIN or a lock pattern to get into your system, you swipe invisible gestures using a picture to orient yourself (in the example they showed, the password was to tap on a persons nose and swipe left across their arm).



### THE HOME SCREEN

By far the most noticeable change is the entirely new home screen. Metro does away with the start menu and tiny icons which are replaced by 'live tiles'. 'Live' meaning the rectangular icons are capable of displaying addition real-time information, like widgets.

For example, your email tile will tell you how many unread emails you have (and who they're from), your calendar tile will show upcoming events, your music tile will show you what's playing, and so on. The tablet-optimized apps are all full screen and "immersive", and you can rearrange their icons on the home screen easily (just as you would on any other tablet platform).



## CHARMS BAR & MULTITASKING

You can access app specific options like search, share, and settings through the Charms bar, which you can get by swiping from the right edge of the screen or pressing Win+C. Apps can share information easily, such as selected text or photos. After picking your media from one app, you'll then be able to choose which app you want to share with, and work with it from there. For example, you can share photos to Facebook, send text from a web page in an email, and so on. Its that easy !



Another cool feature is true multitasking. We're not talking about apps running in the background; we're talking about two apps, side by side ! Say you want to watch a video and keep an eye on your news feed at the same time. Just like in Windows 7 for the desktop, you can dock an app to one side of the screen while docking another app at the opposite side, which is a seriously cool feature. Imagine being able to IM and play a game at the same time, or browse the web while writing an email !



# Windows 8

Through the eyes of consumers



65,968 opinions about Windows 8 were shared on Twitter between June 15th, 2011 and September 22nd, 2011. We analyzed discussion about initial reactions, hardware options, operating system comparisons, and new features.

## Initial Reactions

15% • 9,895 Tweets



With overall positive sentiment, Windows 8 is entering the market in a strong position.

## Hardware

17% • 11,215 Tweets



Tablets appear to be preferred as half the conversation regarding PCs is negative.

## OS

27% • 17,811 Tweets



The tablet friendly Metro UI is being favorably compared to iOS and Android.

## Features

41% • 27,047 Tweets



\*Files, Cloud, App Store, etc.

Amongst the many new features, the improved boot time is the most anticipated.

## Buzz

June 15, 2011 to September 22, 2011



Early conversation is comprised of developers, tech savvy individuals, and early adopters. As consumers become more aware of Windows 8, the focus of conversation will likely change.

## THE WINDOWS STORE

Microsoft, like many desktop and mobile OS manufacturers has understood the importance of a centralised app store. The Windows Store, looks much like the home screen, with tiles that correspond to different categories and featured apps. From there, you can look at a more detailed list of the available apps in a given section. And, the store contains not only touch-based apps for the tablet interface, but some of the more traditional desktop Windows apps you're used to, so you have one portal to discover all your Windows apps no matter what interface you're using.



Right now, the Windows Store is full of free apps. When Windows 8 officially releases to the public, though, you should find many more apps in the store, including paid ones. What's really cool about the app store is that you can try apps before you buy, and then download the full version without losing your place in the app or reinstalling anything.

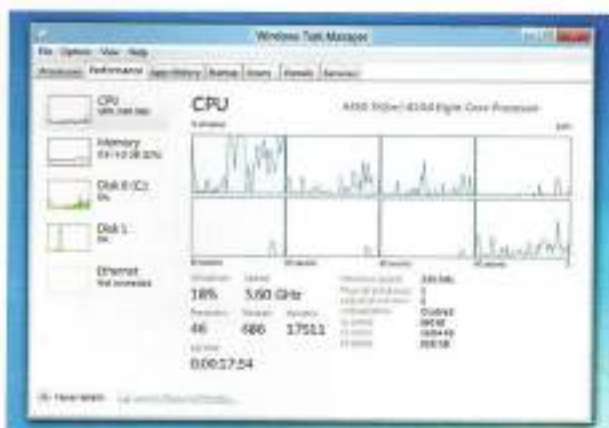
## SYNC DATA TO THE CLOUD

Your Microsoft account can now sync your address book, photos, SkyDrive data, and even data within third-party apps can sync up to the cloud, and you can access them on any Windows 8 device—even a brand new one. Just sign in, and you'll have access to everything. The address book also syncs with other services like Facebook and Twitter as well. You can even sync all of your settings from one Windows 8 PC to another. Just sign onto your Windows 8 with a Microsoft account and you'll get all your themes, languages, app settings, taskbar, and other preferences will show right up.



## NEW & IMPROVED TASK MANAGER

The performance improvements and memory management of Windows 8 means you'll likely be visiting the task manager less. Nevertheless, it's there, and it's much better now. You have a very simple task manager for basic task killing, but more technical users can bring up the detailed task manager filled with information on CPU and RAM usage, Metro app history, and even startup tweaking—so you can get rid of apps that launch on startup without going all the way into msconfig.



## SEARCH

To search within Windows 8, all you need to do is to type anything, and a search box will appear from the right and give you the results. The search capability is even stronger this time, displaying all the matching apps and files instantaneously.

You can also search within apps that utilize Windows 8's search function. The search pane that pops out on the right of your desktop will contain the list of apps which you can conduct the search in. For instance, if you're looking for the emails sent by a particular contact, typing that name and clicking on the email app would allow you to search from within.



It's clear that Windows 8 will be Microsoft's most ambitious launch to date. Even so, the drastic change will mean people will either love it or hate it. I love it.

- Aaron Brako (TE IT)

# Apps & Utilities

## Video Compression

We've all faced the problem of not having enough space on our mobile devices. What do you expect, with a single TV show episode taking up as much as 700MB? You should probably compress your videos.

How, you ask? The best way to compress a video is make use of x264 codec. This codec was made by Video Lan, the same people behind VLC player. Websites like YouTube, Facebook, Vimeo, Hulu, etc make use of x264. With the help of x264 the video size almost reduces to 1/4th or 1/8th the size of the original video.

In order to make use of x264 codec for compressing videos, we can use of a software like Handbrake. It is a cross platform software i.e. it works on Mac OS X, Windows and Linux, and is free.



Its very simple to use and allows conversion of video using x264 codec to either .m4v or .mp4 or .mkv format. You can also add subtitle files to the video.

- Nayan Seth (FE Comps)

## Game Booster

How often have you tried out a new game, only to find out it runs a little laggy? The more technically inclined usually shut some open processes via the Task manager. Game Booster does this for you, and more! It lets you spend more time gaming and less time tweaking your computer before every session. The way that it frees up computer resources without harming game-play is impressive to say the least. The application itself uses very little processing power.



Designed to help low and mid range PCs for smoother, more responsive game play in the latest PC games with the touch of a button, Game Booster also helps achieve the performance edge previously only available to highly technical enthusiasts. It works by temporarily shutting down background processes, cleaning RAM and intensifying processor performance.

So the next time a game doesn't perform optimally, give Game Booster a try before you start pulling your hair out. You may not need to upgrade your rig just yet.

- Neel Shah (FE Comps)



### SPICE UP YOUR TIMELINE

Facebook's timeline profile gives you acres of space to express yourself. Why not get creative with it?

You only need very basic knowledge of Photoshop to

get started. Just download the template here: [www.j.mp/Khh5W](http://www.j.mp/Khh5W) and follow these steps.

- Unzip the file and open the .psd file
- Double click the Photoshop Action (.atn)
- In the layers folder "personalization" do your personalization
- Go to Window > Actions > Choose the action, click play. It will automatically create the profile and cover images.

## Picasa

Are you bored with the way Windows arranges the photos and you want something like the iPhoto for Mac. Well there is this awesome software which does that for you. Its Picasa.

Picasa organizes your entire collection by scanning the images on your computer and automatically sorting them by date. You can create great galleries with just a few clicks and it provides a nice alternative to the default windows photo viewer. It pops up images in a nice smooth animation and gives you some options.

Picasa makes it easy and fun to view with scroll to zoom feature similar to the one we now have on our mobile phones. It even packs in facial recognition, and can easily sort pictures based on whos in it!

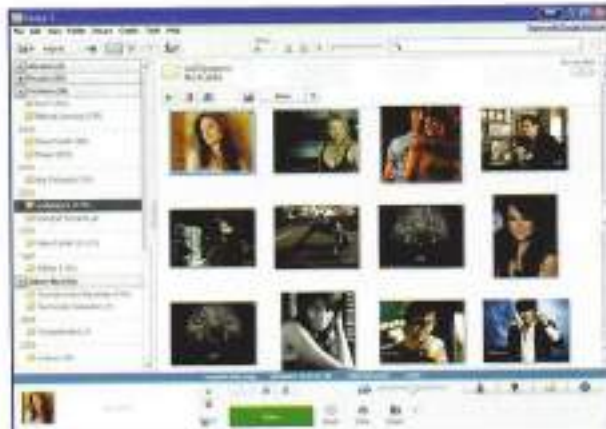


Image editing is very easy and effects can be added to the photos with a few simple clicks. It is very fast and has a very clean, simple user interface. And lets even amateurs with no knowledge about editing, give some stunning Photoshop like effects to pictures.

It also saves the original image in case you ever want to revert it back. You can create and edit videos, create a collage, posters, screensavers, and directly upload it to YouTube or Picasa web and share it on Gmail or Google+.

### “ Free, unlimited storage online ”

To top it all, Picasa users can upload unlimited photos online to Picasa Web for free, so long as they are under 800x800 pixels. For google plus users, the limit increases to 2048x2048 pixels. And if you reach your storage limit, and try uploading a large image, it will automatically resize it to 2048x2048. You'll never lose any of your photos ever again.

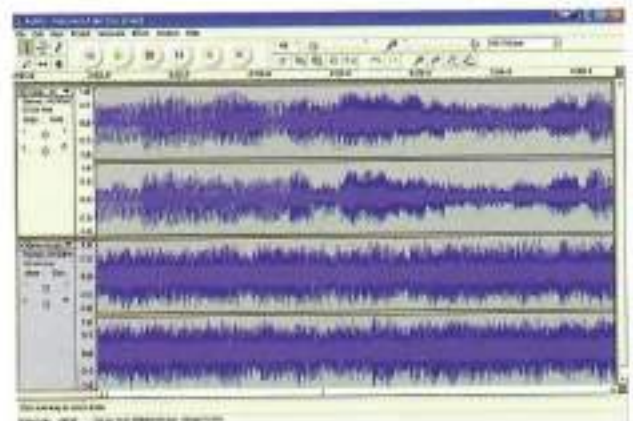
## Audacity

Audacity is an open source free sound editing software. It is available for Mac OS X, Windows & Linux. It is one of the easiest sound editing softwares out there. It has a very friendly user interface, and is easy to learn and use.

Audacity can also be used for post-processing of all types of audio, including podcasts by adding effects such as normalization, trimming, and fading in and out. Audacity has also been used to record and mix entire albums.

### WHAT AUDACITY CAN HANDLE

1. Recording and playing back sounds.
2. Editing via Cut, Copy and Paste (with unlimited levels of Undo)
3. Multitrack mixing.
4. Eliminate or enhance vocals from a song, make a karaoke track.
5. Create sound stories for images using free sound effects websites. You could easily use creative commons Flickr photos as your source of 'sound-rich' images.
6. Record compositions or class singing to share with others.
7. Sounds can also be recorded for powerpoint presentations and animation videos. It also allows users to easily create their own ringtone.



Audacity offers a multitude of features, and a clean UI, and for the unbeatable price of free it surely deserves a place in every techie's toolkit.

- Vivek Sanghvi Jain (FE Comps)



## Defraggler

Ever heard the term 'defragmentation' thrown around by some techie? Here's what it is and why you need it.

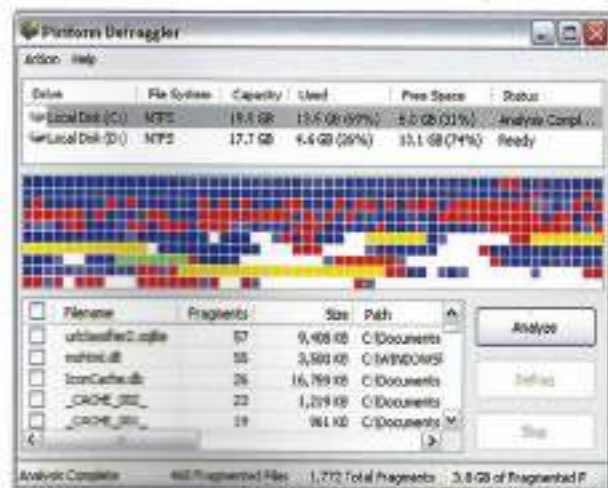
Hard drives are divided into sections known as blocks. It forms the smallest unit of hard space. Data fragmentation occurs when a piece of data in memory is broken up into many pieces. It is usually the result of adding a large object in a small space which has been fragmented.

For example, there is a document. A user deletes the document. Now the space occupied by the document will be recovered but there will be small holes created in the freed space. Now when the user adds another document/file, the file will get the fragmented space allocated. The space allocated is broken and this will cause few problems like sluggishness, pc slowing down, etc.

Since files of different sizes are constantly being added and deleted, files end up getting scattered across clusters all over the hard drive. This is inefficient, because when Windows requests a fragmented file, the hard drive has to move to various sections of the disk to retrieve it.

Performance degradation due to fragmentation is one of the most severe problems faced by system managers. Over time, it leads to degradation of system performance. Eventually memory fragmentation leads to complete loss of free memory.

This is how different files are located in different clusters, shown by different colours.



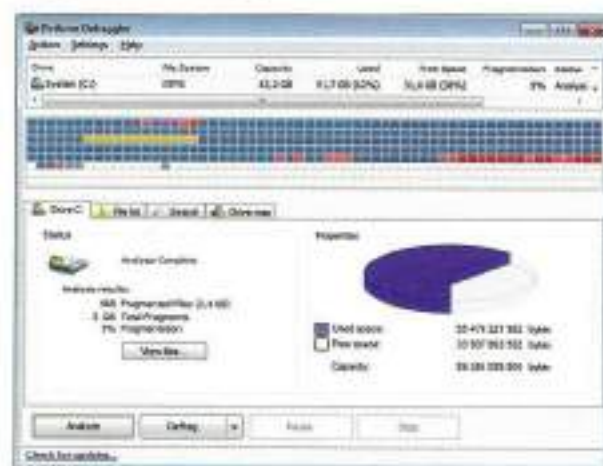
### WHAT DEFRAGGLER DOES

Defraggler scans the hard drive for folders and files that are scattered in non-contiguous clusters (clusters that aren't right next to each other). It designs an optimum layout for these files so that Windows will spend the least amount of time retrieving them in the future. Finally, Defraggler moves the files into this optimum pattern. Piriform Defraggler is essential for Windows XP, Vista and 7, handle memory management well enough that you need not manually defragment.

### WHAT HAPPENS ONCE I USE DEFRAGGLER

By defragmenting freespace on your hard drive, you'll notice improved file system performance whenever Windows writes new files. This process will also prevent new files from being fragmented in the future, to some extent.

And using it once in two weeks is enough to keep your computer fast and fragment free.



- Vivek Sanghvi Jain (FE Comps)

## Get in Touch

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articles.csi@gmail.com

# Arduino Based Ambient Lighting



High tech laptops and the advent of HDMI have revolutionized the field of home entertainment. In the fast and busy life of today, people don't get time to go see movies in the theatre or even watch their favourite tv shows on time. So they usually end up downloading them from various sources (mostly non-legitimate) and watching them on their laptops or desktop PCs.

Now electronic freaks will be well aware about the Arduino open source platform which has simplified micro-controllers and is being used world-wide in all fields, not strictly restricted to engineering. I really like the concept of ambient lighting systems which synchronize with entertainment to create a great immersive experience. Using a

vibrant RGB LED strip interfaced with an Arduino and a Processing sketch, the ambient lighting system works and looks really great!

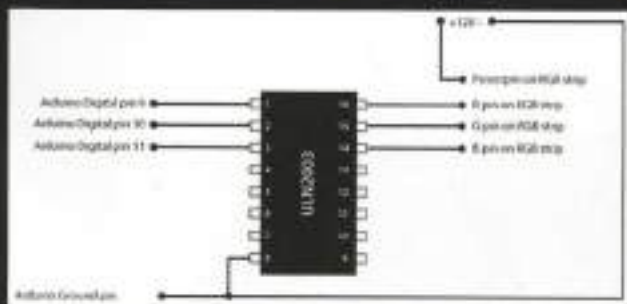
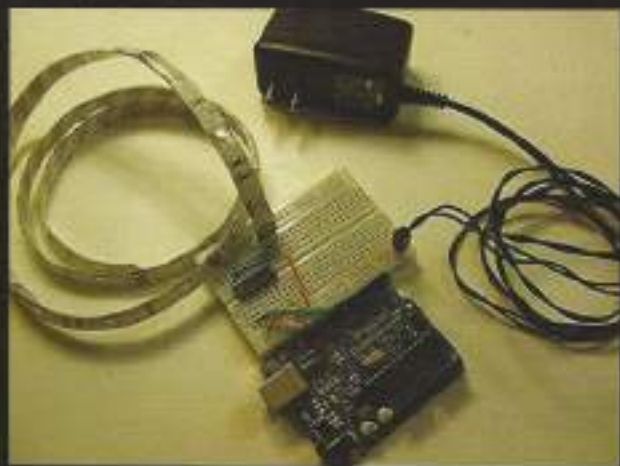
## WHAT YOU NEED

- An Arduino
- An RGB LED strip
- A ULN2003A IC  
(transistor array for driving LED strip)
- A 12V power supply

The LED driver circuit is extremely simplified due to the ULN2003A chip which eliminates the need for a separate transistor circuit for each R, G and B channel of the LED. The system works by taking screenshots continuously and averaging the all the pixel colours. This data is then sent to the Arduino over USB. The Arduino receives this data and controls the

LED strip colour accordingly using pulse-width modulating (PWM) technique for each channel (Red, Green, Blue). The final result is an efficient soothing ambient lighting system to enrich your viewing experience. This concept implemented alongwith the home theatre system would provide the ultimate upgrade.

The processing code works with two basic objects – robot and port. The robot is an object of the Robot class used alongwith the BufferedImage class to capture screen and analyse the pixels at regular intervals. The serial object of class Serial is used to pass the values to Arduino. The Arduino uses the PWM channels to alter the LED colours and thus provides ambient lighting.



## PROCESSING CODE:

(open Processing IDE: <http://processing.org/>, copy-paste code, run)

```
import java.awt.Robot;
//java library that lets us take screenshots
import java.awt.AWTException;
import java.awt.event.InputEvent;
import java.awt.image.BufferedImage;
import java.awt.Rectangle;
import java.awt.Dimension;
import processing.serial.*;
//library for serial communication

Serial port; //creates object "port" of serial class
Robot robby; //creates object "robby" of robot class

void setup()
{
  port = new Serial(this, Serial.list()[0],9600);
  //set baud rate
  size(100,100); //window size (doesn't matter)
  try //standard Robot class error check
  {
    robby = new Robot();
  }
  catch (AWTException e)
  {
    println("Robot class not supported by your system!");
    exit();
  }
}

void draw()
{
  int pixel; //ARGB variable with 32 int bytes where
  //sets of 8 bytes are: Alpha, Red, Green, Blue
  float r=0;
  float g=0;
  float b=0;

  //get screenshot into object "screenshot" of class
  BufferedImage
```

```
BufferedImage screenshot =
robby.createScreenCapture(new Rectangle(new
Dimension(1368,928)));
// 1368*928 is the screen resolution
```

```
int i=0;
int j=0;
// 1368*928
// I skip every alternate pixel the program 4 times faster
```

```
for(i =0;j<1368; i=i+2){
for(j=0; j<928;j=j+2){
pixel = screenshot.getRGB(i,j);
//the ARGB integer has the colors of pixel (i,j)
```

```
i = i+(int)(255&(pixel>>16)); //add up reds
g = g+(int)(255&(pixel>>8)); //add up greens
b = b+(int)(255&(pixel)); //add up blues
}
}
```

```
r=r/(684*464); //average red (remember that I skipped
ever alternate pixel)
g=g/(684*464); //average green
b=b/(684*464); //average blue
```

```
port.write(0xff); //write marker (0xff) for synchronization
port.write((byte)r); //write red value
port.write((byte)g); //write green value
port.write((byte)b); //write blue value
delay(10); //delay for safety
```

```
background(r,g,b);
//make window background average color
}
```

```
////////////////////////////////////////////////////////////////////////////////////////////////////////////////////////////////
```

## ARDUINO CODE:

(transfer this program to the Arduino)

```
int red, green, blue; //red, green and blue values
int RedPin = 9; //Red pin 9 has a PWM
int GreenPin = 10; //Green pin 10 has a PWM
int BluePin = 11; //Blue pin 11 has a PWM
void setup()
{
  Serial.begin(9600);
  //initial values (no significance)
  int red = 255;
  int blue = 255;
  int green = 255;
}
void loop()
{
  //protocol expects data in format of 4 bytes
  //(x)ff as a marker to ensure proper //synchronization
  always followed by red, green, //blue bytes

  if (Serial.available()>=4) {
    if(Serial.read() == 0xff){
      red = Serial.read();
      green= Serial.read();
      blue = Serial.read();
    }
  }
  //finally control led brightness through pulse-width
  modulation
  analogWrite (RedPin, red);
  analogWrite (GreenPin, green);
  analogWrite (BluePin, blue);
  delay(10); //just to be safe
}
```

- Prerak Datta (TE Comps)


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College	Initial Score	Final GRE Score	Improvement
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Vidyalankar	1110	1430	320
DJSCoE	1010	1450	440
TSEC	1200	1440	240
TSEC	1150	1520	370
VJTI	1250	1470	220
DJSCoE	1280	1530	250
TSEC	1210	1480	270

A large blue arrow pointing upwards, positioned to the right of the table, indicating the improvement in scores.

#### Listen to our students' speak on their experiences:

- The GRE coaching classes were interactive and the office hours helped me a lot. I scored a 1460. Thanks for all your help.*
- Just wanted to thank you for all the efforts your team put in to make me reach this point. It would not have been possible without your efforts and inputs.*
- The best part about the class was the concept of office hours. The faculty is so easily available to help you out.*

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