SIDDAGANGA INSTITUTE OF TECHNOLOGY

SIGMA

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SUMMING UP TALENTS

The Newsletter of Department of CSE

Editorial

To paraphrase an old saying: The only constant in life is change. It may seem quite ironical, but then one cannot deny the statement. The world today is developing at a very fast rate and it is all because people are eager to discover and invent more. Each and every day the researchers are working with same zeal and curiosity. You may notice one prominent factor in all the development and researches made in the technology, it was all because of the collaboration and team effort, several minds brought together. Even the root cause for the development of World Wide Web (WWW) in CERN, 1989 was to share the work of the scientists and researchers in universities and institutes across the world which may help in the development of a specific technology on a large scale.

The main idea behind developing a technology was to make human life more easy and comfortable. Today the development in technology is on another level. Sophia, a social humanoid robot developed by a Hong-Kong based company Hanson Robotics. Sophia was launched on April 19, 2015 and in October 2017, became a Saudi Arabian citizen, the first ever robot to receive citizenship of any country and there are so many astonishing developments going on. So to make any contribution to the current technologies and trends, one has to be updated with the existing ones. Sigma brings you the latest technologies and developments across various domains in a very intuitive manner. The edition is comprised of various sections. Starting with the cover story and moving on to crosswords where you will come across new terminologies and words. It is then followed by an article on science fiction. You may then test yourself by predicting the output of the code snippets in the section named Hunting in C/C++. You may find various interesting stuffs in Tips and Tweak section. To avoid the monotonous pattern, there is a small activity a DIY (Do It Yourself) where you can make a small setup on your own, a shortcut way to achieve any current trending technological issue. The last section is the Open Source where you will get to know the open source and free software and utilities which can act as a substitute for paid or proprietary software. In between you will find three articles on the current technology.

"Capacity is the state of the mind". There is no absolute measurement of the capacity of human mind. The human mind should not be used only for storing facts, but it should be used to think. Think big, think confidently and act confidently. The fact that you are reading this newsletter, clearly shows the zeal and your interest in acquiring knowledge and do better. Somewhere somehow you don't even know this will help you in your future and then you will appreciate your habit of reading. Remember, only "Action Cures Fear". So take actions for what you plan.

-Aayush Sinha

AUGMENTED REALITY

We have "Advanced". Some sort of shift has occurred and we can feel it deep inside. We have been learning, connecting, transmuting, and realising for several years to help us get to this point. We have entered into a time of great creation, never experienced before in this universe. We, being the creators can navigate this multi-dimensional experience. Our brain is the most powerful 3D computer in the world. We have evolved to think and store memory in three dimensions. Infact, when we look at an information on a flat piece of paper or on a computer screen, it takes some time for our brain to translate back the information. You all have seen television shows featuring memory artist who can remember sequences of thousands of numbers and names. Well! memory artists use a trick. They create a 3D image of a familiar street or room in their memory and then they store the information along the streets to be able to recall it later. The fact that we are able to tap in our 3D computer is the biggest promise that technology called AUGMENTED REALITY holds for us.

Augmented reality (AR) is the ability to take a trigger image of real-world environment using digital information. It refers to the juxtaposition of graphics onto what an individual is seeing in real time. It is the live view of an environment in the physical world, with computer generated or virtual elements that augment or supplement that environment. It is all about explaining our experiences of physical world, which can be applied to fields like motion graphics. To accomplish this, we need a graphics engine and a processor that can change the image in real time, while still anchoring it to real world around us. It is related to a more general concept called computer-mediated reality, in which a view of reality is modified (possibly even diminished rather than augmented) by a computer. Augmentation techniques are typically performed in real time and in semantic context with environmental elements, such as overlaying supplemental information like scores over a live video feed of a sporting event. Imagine the ability to browse life like we browse web.

It might seem revolutionary, but this technology started way back in 1962 when cinematographer Morton Heilig created "Sensorama", a simulator with visual, sound, vibration and smell. Augmented Reality's first real world application was heads up display in fighter jets, allowing pilots to see important information projected infront of them on window shields. This technology eventually made its way to your eye glasses with Google glasses. Heads-Up displays have now started to appear in cars. BMW is one of the pioneers.

Another way that Augmented Reality is generally experienced is through gaming, creating immersive gaming experiences that utilize our actual surroundings. Imagine shooting games with zombies walking in our own bedroom! The biggest use of Augmented

Reality in gaming to-date is Pokémon Go, allowing users to catch virtual Pokémon who are hidden throughout a map of the real world. One of the most impressive use of augmented reality for games came with the announcement Microsoft HoloLens. The HoloLens uses advanced sensors and hardware to scan our room and create images based on our physical space. We can interact with the images and see them from different angles using HoloLens headset.

In educational settings, Augmented Reality has been used to complement a standard curriculum. As AR evolved, students could participate interactively. Computer-generated simulations of historical events, exploring and learning details of each significant area of the event site could come alive. For instance, astronomical constellations and the movements of objects in the solar system were orient in 3D and overlaid in the direction the device was held and expanded with supplemental video information. Chemistry AR apps allowed students to visualize and interact with the spatial structure of a molecule using a marker object held in a hand. Anatomy students could visualize different systems of the human body in three dimensions. Augmented reality technology enhanced remote collaboration, allowing students and instructors in different locales to interact by sharing a common virtual learning environment populated by virtual objects and learning materials.

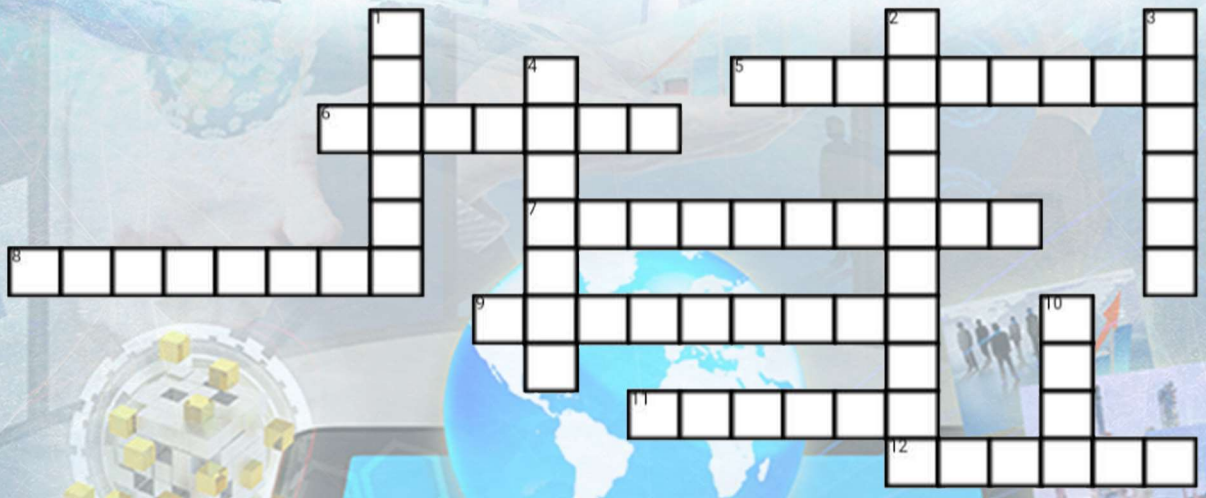
A key measure of AR systems is how realistically they integrate augmentations with the real world. The software must derive real world coordinates, independent from the camera. That process is called image registration which uses different methods of com puter vision, mostly related to video tracking. Many computer vision methods of augmented reality are inherited from visual odometry. Usually those methods consist of two parts. The first stage is to detect interest points, fiducial markers or optical flow in the camera images. This step can use feature detection methods like corner detection, blob detection, edge detection or thresholding and or other image processing methods. The second stage restores a real-world coordinate system from the data obtained in the first stage. Some methods assume that objects with known geometry (or fiducial markers) are present in the scene. In some of those cases the scene 3D structure should be calculated beforehand. If part of the scene is unknown simultaneous localization and mapping (SLAM) can map relative positions.

Augmented Reality will completely change how we learn, how we work and perhaps how we think. AR is currently in a developing phase, but soon this technology will be available for all of us through smart glasses or even contact lenses. These AR devices will soon surpass the current 2.6 billion smartphone users in the world. This technology will improve education and productivity and we'll be able to unlock amazing untapped potential within the next few years. Applications of this technology are truly endless. This is the future that we are going to live in. It is upto us, the thinkers, the artists, the scientists and the educational experts to create something meaningful. Something that will let us build a more connected and a better world.

-Prachee Kaushik

CROSSWORD

-Sahana & Antariksh



ACROSS

5. Wisdom of mass principles
6. First decentralized digital currency
7. Smart glasses that capture I O seconds video
8. First word processor
9. Security key sent from a server to an authorized device
11. A virus that neither replicates or copies itself but com prises the security of the computer
12. "do no evil" is a tagline of....

DOWN

I . A program that catalogs websites
2 . Allows multiple instructions to be Processed at the same time
3 . Term that may be used interchangeably with Username
4. A place served by public wireless access
10. Search engine that provides "instant answer" for certain type of queries

KEY

ACROSS
5. Wikipedia
6. Bitcoin
7. Spectacles
8. Wordstar
9. Softtoken
11. Trojan
12. Google

Down
1. Spider
2. Pipelining
3. Handle
4. Hotspot
10. Bing

ECHOES OF SIMULATORY SPACE

-Swastishree

It's a fine autumn dawn.Birds chirping all around and the tender shine of blissful sun pass along the window sill,gently touches my face.It's time to wake up and get on with my chores."Good morning John,have your coffee." greeted Alex.Well let me introduce myself. I am John Wilson,astronaut by profession and a weird lover of computers.This love of mine made me create Alex-my personal bot.It took me years to bring Alex into work.Anyway as usual I am about to go to my work.A space mission work was in progress and it was decided to get on Mars in a month.This was my first ever mission."I am on cloud nine." I was one of the three members who were assigned to go up to Mars.

Days passed by. Finally it was my most awaited day. It was scheduled 12.36 a.m. GMT. "I bade bye to Alex before I left home today.I am all set to go." Count down begins. And it was three..two..one..Whoosh!! Leaving in this 30th century,I was in seventh heaven right than up into the space.Within no time my blood went cold."Bash!!!Don't know what's happening right now. But some strong power is pulling me towards it.Oh God something is seriously wrong.I am rushing into something dark, very dark." Unaware of how many years have passed finally I had opened my eyes. Holy crap!What I saw around was totally confusing.It took me time to realize what it was. I was in a place where all were Alex.I mean most all were bots and very few were human beings.Works were swapped.People were serving the bots with their requirements like Alex served me back at home.What I saw was totally freaking me out.It was a space were people were being simulated like bots being simulated on Earth."I pinched myself to make sure what I am seeing is real." Artificial creatures were more than natural creatures.I was literally unaware of what was happening with me.But still I was not out my consious to miss seeing all that was happening aroung me.I was in my costume(costume in which I was ready to go on Mars. Fortunately or unfortunately I was in a simulatory space.) How humans are on Earth so were bots in this space.Houses made of micro and nano chips, wires running along connectiong hardwares.Totally it was like a programmed setup.To my goodness,all that I was seeing was real as I could touch and feel it.These rarely found humans that served these bots had bagpacks with oxygen containers. They worked accordingly as ordered by the bots that owned them.

They worked accordingly as ordered by the bots that owned them.These rarely found humans that served these bots had bagpacks with oxygen containers. They worked accordingly as ordered by the bots that owned them. "Did they just come here like me and are trapped here?" This thought was scaring me out. The sky had atomic particles floating.It was mesmerizing to look at the scenario around me at the same time.Gosh! To my utter astonishment I came to know that it was 44th century. Back than on Earth it was decade centuries behind when I left for Mars."How come all this could happen."

In my utter state of confusion I was unaware of what to do. All these emotions and feelings that humans pertained were seeded into them by these bots.How could this be even possible?But I could not deny it as I was in person seeing all that took place around.Humans drove the car for the bots as they were instructed by them. I was sure enough that I was not in control of someone else.I was an alien there.It was nothing but contrast to that of Earth's. Badly I wanted to be back home.Mars ride was a flop ride.But I had no answer for why I had landed somwhere in a weird world.I was also scared if some bots come to me and ask me do the stuffs the other humans did there and take me under their control."No this shouldn't have happened to me." I was unstable not knowing what to do,how to get out from there. The whole scenario started irritating me. All I wished was a throwaway from that mysterious world.Wait I saw Alex.I was stunned."Finally I can get some help." "John get some coffee!",this is what I heard from Alex."Seriously,this was not the way I programmed Alex. I was awful and helpless now." Right at that moment I heard "Good morning John,have your coffee." It was Alex standing by the side of my bed with coffee. Damn it. All that I saw was my dream. I had an instant sense of relief.

But now,here comes my thought "Are we controlled by something? Are some invisible creatures simulating us? Than what's the mystery behind our existence?" My head is geting interrorgated with all these questions.-Science is much beyond human beings' knowledge. Science has given solutions to most of the mystic questions.We program bots.We simulate them according to our will and wish. Finally what remains in my head is " What if we are simulated?"

CHIEF EDITOR
AAYUSH SINHA

CHIEF DESIGNER
NISHANK PANDEY

DESIGNERS:
SANKALP SAURABH
DIVYANSHU ANAND

CREATIVE HEADS
PRANAY, NIVEDITHA, ABHISHEK KR.
PATHIKRIT , ABHISHEK PRATIK,
KUSHAL, ARCHANA

HUNTING IN C & C++

-Sankalp Saurabh

Q 1.

```
int func(int num)
{
  int i,ret = 0,mask = 1;
  for (i = 0; i < 32; i++)
  {
  if ((num & mask) !=0)
      ret++;
   mask <<= 1;
   }
   return ret;
}
```

The value returned by func(239)is ____.

Answers : 7

Q 2.

```
int main()
{
    int ar[]={6,7,8,9,10};
    unsigned int i;
    int *ptr;

for(ptr=ar+4,i=0;i<=4;i++)
    printf("%d ",ptr[-i]);
    return 0;
}
```

Answer: 10 9 8 7 6

Q 3.

```
#include <stdio.h>
int min(int i)
{
   return(--i);
}

int main()
{
   int j=28;
   j=min(j=min(j=
              min(j+1)));
   printf("j=%d",j);
   return 0;
}
```

Answer j=26

Q 4.

```
#include <stdio.h>
int main()
{
   unsigned int k;
   k=(32>>(3+1-2))&
         (~(2<<3));
   printf("%d",k);
   return 0;
}
```

Answer 8

WEB VR

Everyone's familiar with the definition of Virtual Reality. But virtual reality is a concept which is extremely limited. Limited in the sense of what platform you're using what application you're using and various such boundations. These limitations are fullfilled to a major extent by WEB VR(Web Virtual Reality). The concept of Web VR is that it is compatible across all platforms and all headsets are supported. So in this way Web VR opens up scope for perusal of this technology to a much larger audience.

WebVR brings with itself a next level of user interactivity in webpages. Today we see a high requirement of enhancing web pages through CSS and JavaScript to make the web experience more and more intuitive. Web VR opens up a new field of user interaction in a web page. It also is beneficial for the developers to create immersive VR experience on the web.

Since the technology of embedding the VR experience is solely based on HTML,CSS and Javascript, developers find it extremely comfortable to embed VR in their webpages. There are several frameworks available to carry out this procedure like A-Frame,Primrose,-React VR,Argon.JSD. Developers can choose out of these available frameworks and work on it as per their requirements. etc. There are also a lot of free 3d elements available in websites like sketchfab.com which can be easily accessed by developers and can be enhanced and uploaded into their web pages.

Concluding-the whole concept of VR is something which is considered extremely limited to a small audience WEBVR helps in bridging the gap between this cutting edge technology and the end users to a very large extent. Gone are the days where we have to scroll through pages and experience the static design and animations.Today we can experience virtual Reality in our Phones,PC's and other similar devices. Online shopping and housing websites can create a more immersive experience by using Web VR in their e-commerce pages. End users can now experience 3d products or their entire house that they are looking for right in their homes before purchasing all thanks to WEBVR. It helps both the developers and end users who experience the VR on the web as more people would be willing to buy stuff or avail services as their web experience is now more intuitive.And it definitely opens up employment or growth scope for the developers to make the pages more advanced and immersive using Web VR because it will turn out to be the need of the hour.to make the pages more advanced and immersive using Web VR because it will turn out to be the need of the hour.

-Aditya Rao

CRYPTOCURRENCY MINING

-Vishal VR

Those were the days when everything was time taking and were mainly physical works. But times have changed now. Technology is growing rapidly. Digital world is growing wider and wider day by day. One of the innovations in this digital world is cryptocurrency.

We are aware of currencies like Rupee, Euro, Yen and many more. Something that most of us are unaware is cryptocurrency. Peers who are into this field of using these currencies have given various descriptions. But in simple words cryptocurrencies are encrypted digital currencies transferred between peer and confirmed in a public ledger via process known as mining. There is a transfer of funds between digital wallet which is called transaction.

This is not the physical mining what we hear about. What happens exactly in mining is confirmations to transactions are given and they are added to public ledger. Anyone can confirm a transaction as it is an open source. Here comes the real problem, since it's a open source the resources you use may be at risk. A sort of mathematical puzzle, computational one needs to be solved by "miner". First miner to solve the puzzle gets added to the ledger. It is permanent and a small transaction fee is added to miner's wallet.

The whole mining process is what gives value to the coins. Voices of cryptocurrency mining is heard all around these days. For instance, a recent report says "Cryptocurrency mining is now so big it's showing up in the earnings of the world's largest chipmaker. Cryptocurrency miners are now influencing the fortunes of the world's biggest chipmaker". The distinctive ads have become have ubiquitous virtually anywhere on the internet that cryptocurrency gets mentioned, which is just about everywhere after several weeks in which bitcoins and other digital currencies experienced great fluctuations.

Risks are involved using these cryptocurrencies. These services have no perfect security. In the next few years, we are going to see national governments take large steps towards instituting a cashless society where people transact using centralized digital currencies. Simultaneously, the decentralized cryptocurrencies – that some even view as harder money – will see increased use from all sectors.The chances of your funds getting stolen and since it not legally authorized one may end up at loss. What one needs to decide is to be rich enough or get bankrupt is all at your own risk.

TIPS AND TWEAKS

-KS Sai Kavya

1. Have Cool Background In Your Removable Drive.

1)open notepad type this

[{BE098140-A513-11D0-A3A4-00C04FD706EC}]
ICONAREA_IMAGE=your image name .extension
ICONAREA_TEXT=0

2)save as Desktop.ini

3)and place this file and the image you want as background picture in removable drive

2. Play God

Windows has a hidden folder called 'God mode' that works as a control panel for all of your OS settings.From here you can tweak and manage everything from your desktop background picture to managing your network connections. To find this folder, create a new folder with this name: God Mode.{ED7BA470-8E54-465E-825C-99712043E01C}.The folder icon will change before your very eyes andyou'll be awarded complete power over your machine. Note: trying this on Windows Vista 64-bit will cause a reboot loop.

3. Reverse Image Search in Google

In Google Chrome, if you right click an image and press "S", it will do a reverse Google search. That means you'll be able to see where that photo is and where it potentially originated.

4. Slow to start

If your computer is taking too long to start up, don't panic: you probably have too many startup programs running. To turn some of these off, click the 'Windows' key + R on a PC, then type 'misconfig' into the text bar. Select the 'Startup' tab on the window that will appear, and you'll be able to disable the startup programs putting a dent in your time. Make sure you check what you're turning off though: some programs might be needed by other processes essential to your PC's function.

5. Want to Reveal the Passwords Hidden Behind Asterisk (****) ?

Follow the steps given below-

1) Open the Login Page of any website. (eg. http://gmail.com)

2) Type your 'Username' and 'Password'.

3) Copy and paste the JavaScript code given below into your browser's address bar and press 'Enter'

Code:

javascript: alert(document.getElementById('Passwd').value);

4) As soon as you press 'Enter', A window pops up showing Password typed by You..!

Note :- This trick works on IE (Internet Explorer)

DO IT YOURSELF

PORTABLE USB CHARGER

- PRATYUSH & KESHAV

Materials required:-

1. 9V Rechargeable Battery (1 pc).
2. Container Box(Any desired size).
3. Switch(Can be removed from any old music player or toy).
4. USB Car charger.
5. Copper Wires.
6. Battery Cap.
7. Solder Gun.

Procedure:-

1.First the battery terminal is prepared.This can be done simply by using battery cap and battery.This assembly acts as the main source of power.

2.Open up the car charger and get the inner circuit board carefully.

3.The inner circuit chip contains the usb connecting port,a spring(connected to +ve termi nal) and a metallic strip(connected to –ve terminal).

4.Complete the power source assembly by connecting the battery to the battery cap.

5.Carefully remove the spring and metallic strip from the circuit board using solder gun.

6.Connect the positive terminal of the Power source to the positive terminal of the circuit board. Connect the negative terminal of the Power source to one of the terminals of the switch.The other end of the switch is connected to the ground(-ve) terminal of the cir- -cuit board.Solder them carefully.

7.Mark the area on the box where the charging wire will be connected,also the position where switch will be fixed.Cut the out the marked areas so as to avoid hampering the shape of the box.

8.Paste a plastic sheet on the base of the box .Then place the whole assembly carefully in the box in any desired way you like.The USB port and Switch are fixed in the slots cut out for them on the box.Fix the circuit,power assembly in the box carefully.

9.Cover the whole charger with the lid of the box.

10.Your Portable charger is ready.

SELF TAUGHT SUPERHUMAN

-Antariksh

The computer that stunned humanity by beating the best mortal players at a strategy board game requiring "intuition" has become even smarter, its makers said .Even more startling, the updated version of AlphaGo is entirely self-taught—a major step towards the rise of machines that achieve superhuman abilities "with no human input".

Dubbed AlphaGo Zero, the Artificial Intelligence (AI) system learnt by itself, within days, to master the ancient Chinese board game known as "Go"—said to be the most complex two-person challenge ever invented.

It came up with its own, novel moves to eclipse all the Go acumen humans have acquired over thousands of years.

It is able to do this by using a novel form of reinforcement learning, in which AlphaGo Zero becomes its own teacher. The system starts off with a neural network that knows nothing about the game of Go. It then plays games against itself, by combining this neural network with a powerful search algorithm. As it plays, the neural network is tuned and updated to predict moves, as well as the eventual winner of the games.

After just three days of self-training it was put to the ultimate test against AlphaGo, its forerunner which previously dethroned the top human champs. AlphaGo Zero won by 100 games to zero. AlphaGo Zero not only rediscovered the common patterns and openings that humans tend to play... it ultimately discarded them in preference for its own variants which humans don't even know about or play at the moment," said AlphaGo lead researcher David Silver. This technique is more powerful than previous versions of AlphaGo because it is no longer constrained by the limits of human knowledge. Instead, it is able to learn tabula rasa from the strongest player in the world: AlphaGo itself.

The 3,000-year-old Chinese game played with black and white stones on a board has more move configurations possible than there are atoms in the Universe.

AlphaGo made world headlines with its shock 4-1 victory over 18-time Go champion Lee Se-Dol, one of the game's all-time masters.Lee's defeat showed that AI was progressing faster than widely thought, said experts at the time who called for rules to make sure powerful AI always remains completely under human control.

This year, an updated AlphaGo Master programme beat world Number One Ke Jie in three matches out of three.

Nishank
Kushal Pranay
Archana
Aayush Pratik
Shweta Kavya Pathikrit
Aditya Antariksh Abhishek
Divyanshu SIGMA Swastishree
Vishal Summing Up Talents Pratyush
Manjunath R Sumathi Chandraprabha
Sankalp Sahana Abhishek Nivedita
Natesh Prachee Suchitra
Keshav Cover Story Sadiq
Personality Dedication
Tips & tweaks
crossword
C-C++
Sci-fi
Tech-Talk
Do-It-Yourself
TEAM WORK

Feedback - sigmacsesit@gmail.com

THE OPEN SOURCE SECTION

- VISHAL & ADITYA

1.GDevelop

GDevelop is a software allowing to create all types of 2D and 3D games without using programming language. The interface consists of several editors, which allows the creation of the game. The software is divided into several editors. A ribbon is located at the top of the interface and adapts to the editor in use. The program is completely free and the games created with work on Windows, GNU / Linux or on the Web.

2.Deeplearning4j

Deeplearning4j is an open source deep learning library for the Java Virtual Machine (JVM). It runs in distributed environments and integrates with both Hadoop and Apache Spark. It makes it possible to configure deep neural networks, and it's compatible with Java, Scala and other JVM languages.The project is managed by a commercial company called Skymind, which offers paid support, training and an enterprise distribution of Deeplearning4j.

3.Audacity

It is a free, easy to use, multi-tracking audio editor and recorder for windows, Mac OS & linux. Audacity can be used to record live audio, can covert tapes& records into digital formats etc., and it includes numerous effects like change the speed or pitch of a recording. AC3, M4A, WMA etc., it's also used to edit WAV, AIFF, FLAC, MP3 sound files and you can write your own plug-in effects using Nyquist.

4.Backup PC

Backup PC is a free disk-to-disk backup software suite with a web based frontend. The cross platform server will run on any operating systems. And it was mentioned as one of the 3 most well known open-source backups. They have used mechanism called data deduplication. It reduces the disk space needed to store the backups in the disk pool and it also incorporates a server message block(SMB) client that can be used to backup network shares of computers running Windows.

5.Cocos2d

Cocos2d is a world's no. 1 open source game development platform. It can be used to build games, apps and other cross platform GUI based interactive programs. All versions of Cocos2d works using the basic primitive known as a sprite. A sprite can be thought of as a simple 2D image, but can also be a container for other sprites. In Cocos2D, sprites are arranged together to form a scene, like a game level or a menu. Sprites can be manipulated in code based on events or actions or as part of animations. The sprites can be moved, rotated, scaled, have their image changed, etc.

6.Broadleaf Commerce

One of the more popular open source E-commerce solutions, Broadleaf is modular and Java-based. Key features include promotions, personalized offers and discounts, personalized ad targeting, promo code support, built-in content editing, multi-currency support, product information management, smart search and browse, SEO management and more. Paid services are available. Operating System: Windows, Linux, OS X.

7.XWiki

Most wiki software falls a little short when it comes to meeting marketing needs, but XWiki is a full-featured platform with more advanced capabilities than most other open source projects of its kind. It supports blogging, reporting and the creation of simple Web applications, all of which can be useful to marketing teams. It comes in both a free and a paid enterprise version.

8. ClearOS

ClearOS calls itself a "next-generation small business server." It incorporates networking, VPN, server capabilities, and enterprise-grade security into a single package with an easy-to-use Web-based interface. It serves a long list of well-known customers, including Google Maps, Cadillac, Samsung, Toyota, Hilton Worldwide, Xerox, Chevrolet, Massachusetts Institute of Technology, Princeton University, Greenpeace and the Boys & Girls Clubs of America. The ClearOS software is available in several different editions. The Home and Business editions are available with a paid subscription, or you can download the Community edition for free. The company also offers a wide variety of pre-configured hardware appliances with prices ranging from $1,199.00 to $34,832.17. In addition, it also offers paid support packages.

9.Blender

Blender is the free and open source 3D creation suite. It supports the entirety of the 3D pipeline—modeling, rigging, animation, simulation, rendering, compositing and motion tracking, even video editing and game creation. Advanced users employ Blender's API for Python scripting to customize the application and write specialized tools; often these are included in Blender's future releases. Blender is well suited to individuals and small studios who benefit from its unified pipeline and responsive development process. Blender is cross-platform and runs equally well on Linux, Windows, and Macintosh computers. Its interface uses OpenGL to provide a consistent experience.

10.Avidemux

Avidemux is a free and open-source video editing program designed for video editing and video processing. It is written in C++, and uses either GTK+ or Qt for its user interface. Avidemux is capable of non-linear video editing, applying visual effects (called "Filters" by Avidemux) to video, and transcoding video into various formats.Avidemux can also insert audio streams into a video file or extract audio streams from video files.Avidemux also has built-in subtitle processing.

11.Wordpress

WordPress is a free and open-source content management system (CMS) based on PHP and MySQL. To function, WordPress has to be installed on a web server, which would either be part of an Internet hosting service or a network host in its own right. A local computer may be used for single-user testing and learning purposes. Features include a plugin architecture and a template system. WordPress was used by more than 27.5% of the top 10 million websites as of February 2017.WordPress is reportedly the most popular website management or blogging system in use on the Web, supporting more than 60 million websites.

12.Moodle

Moodle is a learning platform designed to provide educators, administrators and learners with a single robust, secure and integrated system to create personalised learning environments. A simple interface, drag-and-drop features, and well-documented resources along with ongoing usability improvements make Moodle easy to learn and use. Moodle provides the most flexible tool-set to support both blended learning and 100% online courses. Configure Moodle by enabling or disabling core features, and easily integrate everything needed for a course using its complete range of built-in features, including external collaborative tools such as forums, wikis, chats and blogs.