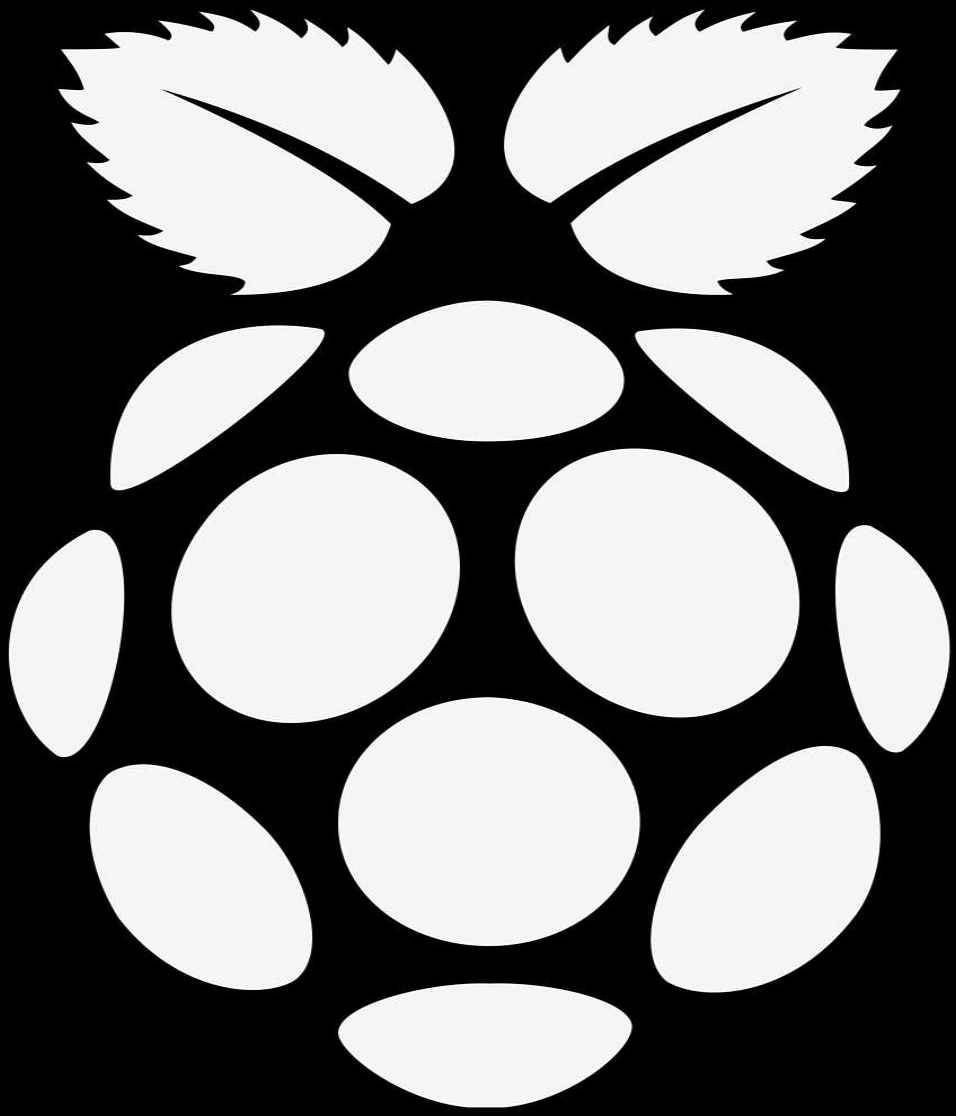
THE COMPLETE BEGINNER'S GUIDE

RASPBERRY PI 3



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Raspberry PI 3:

The Complete Beginner's Guide To Raspberry PI 3

Byron Francis

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Introduction

I want to thank you and congratulate you for downloading the book, *"Raspberry Pi 3 Systems"*.

Welcome to a step-by-step ebook that practically teaches you art of understanding the Raspberry Pi 3 Systems. Raspberry Pi 3 system is one of its kind, a new technology adapted to equip computer systems work efficiently.

Get committed and learn, if you are only willing; you will achieve.

Reasons why this book is great

This book unveils the secrets of using Raspberry Pi 3 Computer Systems and attain the price of as a professional.

This book will help you discover a massive reason to be a master of Raspberry Pi 3 Computer Systems which is a lifestyle you can lead.

Thanks again for downloading this book, I hope you enjoy it!

Chapter 1

Raspberry Pi 3 Computer Systems

A computer system, which may be made up of multiple individual systems and components, designed to provide mission critical services must be able to perform in a consistent and timely manner under various operating conditions. It must be able to meet its goals and objectives whether it is in a state of normal operation or under some sort of stress or in a hostile environment. A discussion on Raspberry Pi systems can be a very complex and far reaching one.

What is Raspberry Pi 3 System?

A Raspberry Pi 3 is a $35 computer system that is on the cusp of challenging the modern personal computer. With the processing power of the latest machine, according to its co-creator is elevated to perform to task where it can comfortably be used as a desktop computer.

Raspberry Pi 3 Computer

A massive change is coming to the ICT curriculum, a subject that the government has now deemed irrelevant.

This change has been implemented with backing from heads of industry. The department of education has said that it hopes the proposed changes will help England retain a competitive edge in the global digital economy.

The implementation of Raspberry Pi 3 may look attractive from an industry point of view; however what does it mean for teachers and pupils who have little or no experience of programming or understanding how a computer works.

One of the problems I foresee is that the majority of pupils will have no parents, uncles, aunts or family friends with any computer science experience. This will make teachers the only port of call for any queries; hence it is vital that we really know this new subject inside out. Personally I feel that the sooner we get to grips with what will be expected of us the fairer it will be on the pupils and the less chance for any nasty surprises.

So what am I doing to prepare for the new curriculum? Firstly I have looked into the new technologies that have kick started this change. The name on everyone's lips is the Raspberry Pi.

The Raspberry Pi was released in February 2012 with the aim to attract more students into computer science at university, it has been recommended by companies such as Google for use in schools. What is the Raspberry Pi? It is a very small computer which can be plugged into a monitor and keyboard.

The clear set out and well laid out diagrams makes the Raspberry Pi ideal for teaching the components of a computer. It also has built in programs for spreadsheets, word processing and playing videos. While these functions make it a useful computer the main attraction of the computer is how easy it is to program.

While on its own the Raspberry Pi 3 could be used to implement the new computer science curriculum there are companies who have been working with the Raspberry Pi 3 to make computer science more exciting to teach.

By allowing pupils to program an object they can see and interact with, the real world applications of computer science can be quickly realised.

The hands on approach to computer science will be sure to demystify a subject that has for too long been taught only in universities. Any fear of an unfamiliar topic of study is likely to be forgotten as the pupils are swept away with an enthusiasm to program a robot.

These kits are specifically designed to be ready straight out of the box and intuitive for new users who are unacquainted with technology. They are also great entrance to further computer science studies for both boys and girls.

Raspberry Pi 3 - Is It Mainstream or Niche?

The original Raspberry Pi, a $35 mini-computer launched in early 2012, triggered a technological revolution. For half the cost of a new console video game, an inventor, programmer, and developer or gamer could pick up a Raspberry Pi and customize it to do anything they desired. Although it is not the first amateur board computer available, its broad base of support and the ability to run a large variety of Linux distributions made it way more successful than its predecessors.

Despite all of its success, the Raspberry Pi was initially limited to only the most curious and clever geeks. Its modest single-core chip was painfully slow when crunching through

many common tasks. Even simple web pages took a while to load and hogged the little RAM available. While you could use the Raspberry Pi as a computer, which drew interest from mainstream users, it was not a very capable unit. As a result, the Raspberry Pi only caught on with hobbyists.

However, the sequel to the brilliant Raspberry Pi is a major upgrade. The single core 700 MHz processor has been upgraded to a 900 MHz quad-core chip and RAM has gone from 256MB/512MB to 1 GB.

Given this, can the new Raspberry Pi 3 be used as a computer? Hmmm.

Chapter 2

Getting Started With Raspberry Pi 3

The Raspberry Pi 3, although really accessible to users with even modest computer skills, still has a learning curve. The own $ 35 price tag is possibly misleading, for it does not include everything needed to make the device work. No power adapter, no microSD card, and not even a case. All that must be purchased separately.

This is not a plug-and-play device

How much does it actually cost to begin using a Raspberry Pi 2, then? Well, I snagged a power adapter for $9, a 16GB microSD card for $6, and a keyboard and mouse for $18. A case was another $8, which isn't mandatory but nice to have if travelling. In total, therefore, the final price (without monitor) is around $75. Not bad, for sure, but more than double the $35 MSRP.

We set up the Raspberry Pi 2 with the standard NOOBS installation ISO. Users can buy a card with it preloaded, but we decided to load the image ourselves. The process took about 20 minutes, most of which was spent waiting for files to transfer. Once transferred, simply connect all the cables and power on the device. You should see the famous Raspberry Pi logo appear once it is connected to a monitor.

If that were the end of the installation, things would really be too good to be true. Raspbian comes with only a few programs installed, and though they provide quite a bit of functionality they lack some of the more advanced bells and whistles. The computer store, for example, is a bit disappointing. It never actually was successful in installing and launching an application. We had to use commands such as "sudo apt-get install libreoffice-writer" to complete the installation and launching. This isn't too advanced for even some of the more new users, but it does require a bit of know-how.

Other errors include incorrect detection of my monitor's native resolution, a DNS issue that prevented me from loading webpages from my router, and disappointing page rendering times. I was able to fix and optimize these issues, but by then a few hours had escaped me.

Next…

Once configured, I was a bit surprised at how the Raspberry Pi 3 made up for lost time. It was a breeze to use and I kept reminding myself how much value is there for $75.

I was even quite surprised at how well the Raspberry Pi 3 managed tasks in GIMP. Editing 720p and 1080p images was never unreasonably choppy-it was actually smooth. While certain complex actions require several seconds to complete, the overall experience was much more pleasant than you would imagine.

More than a hobby?

Can one say that the Raspberry Pi 3 is for mainstream use? Or is it best suited for developers, programmers, engineers, and others? Unfortunately, if one can find a used PC from a reliable seller, they can spend only dollars more to obtain a PC with significantly faster performance and more storage.

This means, to me, that although the Raspberry Pi 3 may be cool to use as a PC, it is best used for hobbyists, developers, and similar others. Don’t get me wrong, you can use this for a niche PC, such as a file server or HTPC, but as a all-in-one PC it fails to deliver. But, it never was intended to do so.

Booting a Raspberry Pi 3 for the First Time

The Raspberry Pi 3 is a pretty cool little computer - however unlike normal personal computers it does not come preloaded with an operating system (OS). This means that in order to use the Raspberry Pi 3 computer you must install a OS of your choice onto a SD card and use that to boot the computer.

This article will demonstrate how to install a operating system, flash it to a SD card and boot your Raspberry Pi 3 for the first time.

Selecting a Operating System (OS)

A Raspberry Pi 3 does not run standard operating system such as Windows 8 or OS X. This is because the Raspberry Pi 3 is powered by a so-called ARM processor, this type of computer processor cannot execute the same programs as your computer. Instead, it must run one of the operating systems that have been optimized and ported to the Raspbery Pi 3 ARM hardware architecture.

Luckily, there are quite a few different operating systems available. It is important to note

that most of them are based on the linux kernel.

Soft-float Debian “wheezy”

The soft-float debian operating system is used primarily if you are running intensive java based applications on your Raspberry Pi 3.

Arch Linux ARM

This operating system is not for beginners so we wont talk more about it just now. However you should take a closer look at this if you are already an experienced Linux user.

Raspbian “Wheezy”

The Raspbian “Wheezy” operating system is the most popular operating system to run on the Raspberry Pi. It has very good integration with the hardware and comes pre-loaded with a graphical user interface and development tools. This will come in very handy if you are not too experienced in a linux environment.

For the purpose of this book we will use the Raspbian operating system since it is easy to get started with. First step is download the latest version of the Raspbian “Wheezy” operating system image. It is freely available here (scroll down to “Raw Images”).

Once you have downloaded and move the file to an appropriate folder right click and select “Extract All… ” - this will extract the image file from the downloaded zip file.

Other Tools

In addition to the operating system we are also going to need a program that can transfer the operating system to our SD card in such a way that the Raspberry Pi 3 can use it to boot from. This program is called Win32DiskImager and is available here for free.

Starting Win32DiskImager

Once you have downloaded the Win32DiskImager file - move it to an appropriate folder, right-click and select “Extract All… ” follow the guide to extract the program.

The program does not need to be installed - you can start it now by double clicking the file “Win32DiskImager”. Before starting plug the empty SD card into your computer.

Once started you will have to select the Rasbian “Wheezy” image file, next select the drive letter of your SD card.

NOTE: Its important that you are 100% sure that the drive letter selected is your SD card.

Now press “Write” and sit back and relax while the program installs the operating system onto your SD card. While waiting you can connect the Raspberry Pi to a USB Keyboard & Mouse and a HDMI monitor or TV.

First boot

Once we have programmed the SD Card - plug it into the Raspberry Pi 3. At this point everything but the power supply should be plugged into the Raspberry Pi 3.

First Boot Configuration

Connect power and you should see the boot sequence on your TV (if not check if you selected correct HDMI input on TV). After first boot the Raspberry Pi 3 boots up in setup mode. If it does not boot into setup mode you can type the following command to get there:

When in setup mode we want to:

We can now reboot the Raspberry Pi 3 and when it boots again it will come up with our new configuration! To log in use the following credentials:

Your Raspberry Pi 3 is now setup, configured and ready for you to use for any purpose you want.

Computer Security and Raspberry Pi 3 Systems

Raspberry Pi 3 systems and computer security are in many ways related but at a low-level very much different. For instance, the hardening of a particular system to be resistant

against intelligent attacks may be a component of a Raspberry Pi 3 system. It does not address the ability of a computer system to fulfill its purpose when it is impacted by an event such as a deliberate attack, natural disaster or accident, or general failure. A Raspberry Pi 3 system must be able to adapt, perform its primary critical functions even if in a hostile environment, even if various components of the computer system are incapacitated. In some cases, even if the entire “primary” system has been destroyed.

As an example; a system designed to provide real-time critical information regarding analysis of specialized medications ceases to function for a few hours because of wide spread loss of communication. However, it maintains the validity of the data when communication is restored and systems come back online. Raspberry Pi 3 computer could be considered to have survived under conditions outside of its control.

On the other hand, the same system fails to provide continuous access to information under normal circumstances or operating environment, because of a localized failure, may not be judged to have fulfilled its purpose or met its objective.

Differences Impact On A Raspberry Pi 3 Computer System

In many cases when discussing the security of systems with customers, the question of business continuity and disaster recovery come up. Most companies that provide a service that they deem critical just know the system needs to be operational in a consistent manner. However, there is typically little discussion about the various events or scenarios surrounding this and that can lead to great disappointment in the future when what the customer thought was a “Raspberry Pi system” does not meet their expectations. Some of the items that may pop up during these conversations is what their computer systems goal and objective is, what specifically does continuous operation mean to them, and specifically what constitutes an attack, failure, or accident that can cause loss of operation or failure to meet objectives.

A failure may be defined as a localized event that impacts the operation of a system and its ability to deliver services or meet its objectives. An example might be the failure of one or more critical or non-critical functions that effect the performance or overall operation of the system. Say, the failure of a module of code that causes a cascading event that prevents redundant modules from performing properly. Or, a localize hardware failure that incapacitates the computer system.

An accident is typically an event that is outside the control of the system and administrators of a local / private system. An example of this would be natural disasters such as hurricanes, if you live in south Florida like I do, or floods, or wide spread loss of power because the utility provider cut the wrong power lines during an upgrade to the

grid. About four years ago, a client of mine who provides web based document management services could not deliver revenue generating services to their customers because a telecommunications engineer cut through a major phone trunk six blocks away from their office. They lost phone and data services for nearly a week.

And now we come to “attack”. We all know accidents will happen, we know that everything fails at one time or another, and typically we can speculate on how these things will happen. An attack, executed by an intelligent, experienced individual or group can be very hard to predict. There are many well known and documented forms of attacks. The problem is intelligence and human imagination continuously advance the form of malicious attacks and can seriously threaten even the most advanced designed Raspberry Pi 3 systems. An accident or failure does not have the ability to think out of the box or realize that a highly available design is flawed because all participants use the same design. The probability that an attack might occur, and succeed may be quite low, but the impact may be devastating.

Fault Tolerant And Highly Availability Raspberry Pi 3 Systems

Many computer systems are designed with fault tolerant components so they continue to operate when key portions of the system fail. For instance; multiple power supplies, redundant disk drives or arrays, even multiple processors and system boards that can continue to function even if its peer component is destroyed or fails. The probability of all components designed to be redundant failing at one time may be quite low. However, a malicious entity that knows how the redundant components are configured may be able to engineer critical failures across the board rendering the fault tolerant components ineffective.

High availability also plays a role in a Raspberry Pi 3 system. However this design component may not maintain computer system survivability during certain events such as various forms of malicious attack. An example of this might be a critical web service that has been duplicated, say across multiple machines, to allow continuous functionality if one or more the individual web servers was to fail. The problem is that many implementations of high availability use the same components and methodology on all of the individual systems. If an intelligent attack or malicious event takes place and is directed at a specific set of vulnerabilities on one of the individual systems, it is reasonable to assume the remaining computer systems that participate in the highly available implementation are also susceptible to the same or similar vulnerabilities. A certain degree of variance must be achieved in how all systems participate in the highly available implementation.

Chapter 3

Best Tips to Improve Raspberry Pi 3 Computer Performance

The following tips to improve Raspberry Pi 3 computer performance are easy to perform once you learn them. Improving your Raspberry Pi 3 computer's performance can be easy if you know what you're doing. This is what separates those that own a computer that runs like a charm, and those that have a computer that barely starts up right. These tips will give you a better idea of how to improve your Raspberry Pi 3 computer's performance.

The Basics

The following tips are very basic and with just a little practice anyone can master the art of using them. You can accomplish a lot simply by using the options that you already have at your disposal. These tools can improve your Raspberry Pi 3 computer's performance, and you don't need a master's degree to complete them.

You can start by using the Disk Cleanup tool that is already a part of your Raspberry Pi 3 computer system. The Disk Cleanup tool will find and label files that are no longer needed and can be deleted without causing any harm to your computer. The tool will then give you the option of deciding which files you wish to go ahead and delete. This is also a simple technique used for removing temporary internet files from your Raspberry Pi 3 computer as well as other unnecessary files that take up memory. Using the Disk Cleanup tool will definitely improve your computer performance.

Another tool at your disposal is the Disk Defragmenter. The Disk Defragmenter, which is also already a part of your computer, will undo the fragmentation that is a natural by-product of using your Raspberry Pi 3 computer and slows it down. This fragmentation happens whenever you install programs, delete files, and move various files from one location on your computer to another. Disk Defragmenter is certainly a tool that will help significantly in the quest to improve your Raspberry Pi 3 computer's performance.

Additionally, you should use your antivirus program to run a full scan on your computer at least once a week.

A Registry Cleaner Can Improve Pi 3 Performance

One of the best computer performance improvement tips is to use a registry cleaner. A registry cleaner is a program that can help improve your Raspberry Pi 3 computer

performance tremendously. In fact, this type of program is so efficient you won't really need to use your other programs. You can do everything you need to do with this one piece of software.

The registry cleaner searches through the files, and entries, that are stored in your computer's registry looking for anything that is out of place. This could include corrupt files, files that have been altered and files that are missing entirely. This is extremely important because the files housed in the registry are responsible for making your computer run. Without them or if they are damaged, your Raspberry Pi 3 computer's performance will quickly plummet.

The registry needs to be cleaned because it grows bigger as it houses more information every time you use your computer. Having a registry cleaner at your disposal will prove to be one of the best investments you've ever made where your computer is concerned.

Choosing the Best Raspberry Pi 3 Computer For You

Like a lot of people in the world today, you probably have a specific budget in mind when you buy a desktop computer. You may wonder, though, how to pick out the computer. What size and shape you need and with all the new technology out there, you may be unsure what to get. This is of no difference when Raspberry Pi 3 computers comes to mind. Here are some useful tips to help overcome most difficult decision.

There are four different types of a PC user. This will help you choose the best computer for you and your family.

General purpose user

A general purpose use desktop computer is perfect for those who like to make pictures, edit pictures, play games and surf the net. Depending on what you need a general purpose computer can range in price from $500 to $1500.

Power User

A power user computer is a computer that can be used to make and edit movies and videos. These types of computers also allow you to make digital designs and play mega games. With these computers you will typically need 2 or more hard drives and a great graphics card. These computers typically run higher in price due to the power behind the computer and the different running systems that it will include. A power user computer can range in price from $2500 to $3500 depending on what you will need to perform the types of work that you want to do on this computer.

Home Theater Enthusiast

Do you love movies and television? Why not get a computer that can handle all of your home theater needs? This type of computer is great for people who love to watch movies and television. Windows Media Center is on all of the windows programs including the new Windows 7. When considering this type of computer always keep in mind what type of media you will be playing. This will help you to decide the video card and how much memory and output you will need. You can also find surround sound for your home theater computer, which will make your home theater even more special. When purchasing this computer make sure that is has the proper DVD drive or if you desire you can get a computer with a blue ray player allowing you the maximum high definition display. This type computer can range in price from $500 to $1500 depending on what you need included with the great entertainment model computer.

Home Office Worker

This is a great computer for those who work from home. With this type of computer you do not need the massive graphics power as other computers unless you design graphics for your home office work and then you would want a computer with a higher graphics count. You will want a system with a dual power core so that you can multitask and get the work done that you need done. Windows has a great operating system in Windows 7 that is great for being able to multitask. The newest feature on Windows 7 allows you to have different windows open at one time and you are also allowed to have them up side by side. This will save you time and you will not have to worry about your computer crashing. Mac also has a great operating system for home office as well. A home computer can run in price from $500 to $2,000 depending on what you need and how you plan on using it.

There are many different features to consider when wanting to purchase any of the before mentioned computers. The main great features that you will want to consider are:

Processor

The two most common type of processor is AMD Athlon 64 X2, or Intel Core 2 Duo processor. You will want a Duo processor if you will be doing a lot of work or something that calls for a high speed processor such as burning or making videos and DVD’s. A processor is at the most basic form the brains of your computer. The faster your processor is the better performance you will receive out of your computer.

Memory

The memory in a desktop computer can vary due to the upcoming technology. Depending on what you need you can find a desktop that has 1G to 4G’s of memory. Memory is changing due to different technology every day. When considering the memory take into

consideration what you will be using your computer for. The more pictures and videos you need to make will increase the gigabyte count. Having the maximum amount of memory allows you to have plenty of room for all those important things that you want to install on your computer.

Hard Drive

Depending on what you will need to store on your computer, you can find the perfect hard drive. A hard drive for this type of desktop can range from 250 G to 500 G. When choosing the hard drive, keep in mind what kind of programs you want to install. If you are wanting to install games or photo editing software, it would be best to have a higher gigabyte count. This allows you to have plenty of space for these programs as well as other programs including music and videos.

Running system

When choosing your computer you will want to pick out a operating system that will work great for you. You can choose Windows or Mac. Both are very reliable brands and will give you a great computer experience. The latest version of Windows is Windows 7 and the latest version of Mac is the Apple OS X Leopard. The feedback on both of these programs are great. You can also ask friends and family that have these running systems how they feel about them and this will help you to pick out the perfect running system for you.

Video Card

The video card helps to control different graphics and video. The most typical video card is 128 mb and comes from NVIDIA and ATI. With ever changing technology the video card will increase in megabyte size and quality. Most computers come with this feature already installed for quality graphics.

Keyboard

Your computer would be basically useless without a keyboard. There are several different choices of keyboard. If you have trouble with your wrists, you can find a keyboard that is ergonomic and has a wrist wrest built into the keyboard. If you do not want the headache of wires all over the place, you can purchase a wireless keyboard. A wireless keyboard gives you access to your computer without the clutter of wire.

Mouse

The mouse is a key component in the running of your desktop computer. The mouse helps you click on links and scroll down throughout pages. A wireless mouse is the latest invention. You can move your mouse around without the constraint of wire. This is a great way to perform your task. A computer can function without a mouse but it would be very difficult to use.

Monitor

The monitor is the most important part of the computer besides the hard drive. The monitor allows you to see images and what is on your computer. You can find average size monitors, wide screened monitors and flat screened monitors. You can even find HD monitors that deliver a even clearer pictures. The size of the monitor depends on what size you need for what you will be doing with your desktop computer. With larger screens you will have the ability to watch many different movies in television size.

Web Camera

A web camera can be hooked up to your computer allowing you to take images and videos and save them directly to your computer. You can also video chat with people online using it with Yahoo, Skype or even Facebook. It is a great way to stay in contact with friends and family. When considering a web cam purchase, check and see what pixels that it has. The higher the pixel, the greater the image will be and less pixilated.

Size

Desktop computers have changed in size drastically over the years and each year it seems like a smaller more compact model is being released. That is great for those of you that do not have a lot of space to store a large computer. You can find a desktop in the size you need including compact. Every year smaller and more compact computers are being released. When looking for the size, take into consideration, where you will set up your computer and how much room you will have. It would not hurt to take measurements and have these with you when you purchase your computer.

DVD/Blue Ray

If you like to watch movies you can purchase a desktop computer that has a DVD player. This is a great way to watch your movies. When purchasing the Raspberry Pi 3 computer make sure you check and see what regions that the DVD player can handle. This way you can enjoy movies from many different regions from around the world. Region 1 is the United States and Region 2 is the United Kingdom. So if you want a movie from across the pond you can purchase it and watch it with your desktop. If you desire high quality and high definition you can purchase a computer that is equipped with a blue ray player. This is great for watching high definition movies.

Warranty

When purchasing a Raspberry Pi 3 computer, you may consider purchasing an extended warranty. This will give you ease of mind in case of something happening to your Raspberry Pi 3 computer. Always remember to register for your warranty and it will make you and your computer feel safer.

Chapter 4

Raspberry Pi 3 As Best Desktop Computers

As the name suggests, a desktop computer is a personal computer that is placed over the desk. Due to its three different parts that are comparatively big in size, the desktop computers are not portable. Both individuals and the corporates make use of desktop PCs. Desktop computers are high on its features. An added benefit of desktop computers is that it can be upgraded and updated very easily. Though its size gives rise to compactness issues, it serves the purpose of all round high configuration computer usage.

The motherboard is a key component of the desktop computer. It connects with other computer accessories like the display screen, keyboard, mouse, speakers, printer, DVD-ROM etc to increase its utility and perform variable duties.

The Desktop Computers can be broadly divided into three main types. They include: Desktop computer, Work Stations, and Gaming PCs. The general Desktop computer systems are those that are generally used at home or in the office. Workstations are those computers designed for self operation. They have a mirror hard disk for their back up. In order to run multi user operating systems, they are connected to a local area network (LAN). They are more like a server for many computers, tend to integrate multiple computers. As the name suggests, the gaming computers are specifically built to play computer games. The games can be played at comparatively high resolutions than domestic computers. To give enhanced gaming satisfaction these computers feature extraordinary exteriors and technically advanced components.

When users opt to buy Destop computers, each person has a different set of demands. Therefore to deliver the best desktop computer that serves the users needs, mostly desktop computers are separately assembled. Such desktop computers are called the assembled ones. In this type of computers, the best components available in the market are put together to deliver the best desktop computer with the best combinations. However in such cases care should be taken, to ensure that all the added components are compatible with the motherboard configuration. In most cases, drivers are added into the system to support all kinds of accessories.

Raspberry Pi 3 can be made use of for different purposes with minor changes in its settings. For eg: it can be attached to powerful speakers and can be switched into a home theater system. By adding an external hard disk, it can be made a huge storage device for all the documentation and entertainment files. Thus a desktop computer can be used as the user want. The assembled ones are more popular in the local market than the branded

ones.

But nevertheless, the branded ones offer more security and good after sales service. So it is upon the user to fix the price when he decides to buy a desktop computer, as an assembly of chic accessories and high configuration could cost a desktop far more than a laptop or a branded desktop computer.

How to Keep Your Raspberry Pi 3 Computer Cool

When your computer is on, nearly all of its components become hot. Constant exposure to high temperature can cause serious damage to your computer.

Here is a list of ways in keeping your PC cool.

Check if your fans are running.

This is the first step when you find your computer overheating. Open the case, and then check if all fans are still working. If at least one is not working anymore, consider doing repairs or getting a replacement.

Regularly clean your computer.

It is essential to regularly clean your computer, especially the cooling fans. The fans attached inside the computer case is used for active cooling of the computer. Over time, dust and dirt can accumulate in these fans. The accumulate dirt can slow down or, in worse, stop fans from working. If fans fail in expelling the hot air fast enough, some internal parts will eventually overheat.

To clean your cooling fan:

1. Shut down your PC.
2. Open the computer case.

3. If there is excessive dirt inside the computer case, take out the computer fan.

4. You can use compressed air, small electronic vacuum or duster, or damp cloth in cleaning the fan.

5. If you use moisten cloth, make sure that the cooling fan is dry or there is no remaining moisture before connecting it again.

Clean other computer parts as well such as the monitor, mouse, and keyboard.

Before cleaning any hardware component, make sure that your machine is turned off. Otherwise, your computer is susceptible to electrostatic discharge that can damage its parts and you are also prone to grounding yourself.

Before applying any cleaning procedures to hardware, make sure to check its manufacturer's manual if they have provided you with the recommended instructions in cleaning or maintaining it.

Do not spray or spill any liquid directly in computer parts.

Do not limit the air flow around your computer.

Place your computer in a room that can provide sufficient air flow. Make sure that it is not sitting right next into other objects that prevent air circulation, like walls or other computers. There should be at least two to three inches of space on both sides. Since most of the hot air comes out from the air vent at the back end of the computer case, this part should be completely clear and open.

Move your computer to a cooler and cleaner environment.

Move your PC in a place with proper ventilation. It is important that the physical location will not contribute further heat to the computer. Make sure that your PC is not placed near a furnace, refrigerator, cooking appliances, and other things that can blow hot air or can transfer heat into your computer system.

To prevent your PC from overheating, it is advised to place it in an air-conditioned room.

Note: be careful when moving your computer in order to avoid damage on sensitive components inside it like the CPU, graphics card, hard drive, and motherboard.

Use your computer with case closed.

It seems logical to let the case open while the computer is running to keep it cooler. This is true. However, dirt and dust will accumulate and clog the computer fans faster when the case is opened. This can cause the fans to slow down or fail at cooling your computer.

Upgrade your CPU fan.

The CPU is the most important component inside the computer. When you are running demanding applications, the CPU and graphics card induce more heat. It can get so hot that it can be cooked.

Consider purchasing a high-quality and larger CPU fan that can keep the CPU temperature lower than the pre-built CPU fan in your computer could.

Consider installing a component-specific fan.

If you have observed that the other components are overheating, install a component-specific fan to cool them down.

Consider installing a case fan.

This small fan can be attached to either the front or back of the computer case. There are two types of case fan: one that can draw cooler air into the case, and one that can expel warm air from the case. Installing both is a great way to cool your computer.

Turn off your computer when not in use.

A computer continues to produce heat as long as it running, even if you aren't using it. If you will only have a few minutes of inactivity, at least set your computer to hibernation. Basically, it will also turn off your computer but the opened files and programs are stored in your hard disk.

Also, unplug external hardware of no longer use like printers and scanners.

Overheating can destroy and shorten the lifespan of components inside your computer. The major upside of keeping your computer cool is that it can help you avoid expensive

repairs or unnecessary upgrades.

Tips On How To Speed Up Your Computer Software

Many people when they buy a computer tend to go on using it ignorant of the fact that it requires certain maintenance to keep it running smoothly and performing optimally. As a result, continued usage without maintenance, the computer performance goes down. To most people this is an embarrassing situation. But what you ought to realize is that you are not alone in this predicament and all you need to learn is how to speed up computer software.

All software installed or files saved to the computer are stored up as an entry in the registry which is the brain of the computer. Without it, the computer is nothing and if it clogs up and this results to sluggish computer performance. To speed up the computer performance you need to scan and repair your computer registry using a good registry cleaner. Delete all unnecessary files and Uninstall all temporary files, software and programs to experience an instant speed boost. This is a simple way of speeding your computer.

Computer viruses may also be major reason for your computers declined performance. You need to perform a PC scan at least once a month to check for viruses. There are many free tools on the internet and you can download a home version of antivirus to get rid of viruses, spyware and malware.

One of the easiest ways to speed up your computer is to do away with all the decorative effects personalized on the PC. This means that you will have to do away with such effects as colorful wallpapers, menu animations, buttons reflections, etc. that consume the computer memory. Getting rid of all these effects will help speed up your Rasperry Pi 3 computer.

PC maintenance software is readily available in the market and you can opt for this option. Such software manages your computer and enables you to realize the full potential of your computer. They also have in built functionality that services your computer.

While saving data in the computer the operating system fragments or rather scatters data all over the hard disk. This drastically slows down the access speed (the time needed for accessing files). To get maximum performance from your PC the data on your disks need to be arranged in perfect order in order to have the fastest access time possible. The solution to this is defragmentation. It involves sorting and merging individual file fragments into separate zones. Therefore, run a disk defragmentation once every few days

to ensure a consistent good speed.

A successful observation of all these tips help lessen PC from sluggishness; thus upgrading the essential data processing hardware like the RAM and processor to optimize performance canbe done once in a while.

Chapter 5

The Benefits of Using a Desktop Computer

A computer is an exclusive component that has enslaved man throughout the globe. People have come to a point that life would come to a standstill if there are no computers in this world. Everything is centered on the use of a computer and the Internet. Computers are of various types from big to small screens, flat to round shaped screens etc. People have their own choice of computers whether laptop or desktop.

With the fast moving world today the laptop has found a very high position in the computer world, but this is meant only for light jobs like checking mail and making a few entries that are essential while being out of the house or office. But if people want to do heavy work then the desk-top is the ideal choice, especially in big offices where laborious jobs are required to be accomplished.

Top reasons why a Raspberry Pi 3 is the best Desktop.

A few of the most well-known benefits of a desk top include first of all the price. Since the Raspberry Pi 3 computers are not portable their price is less, but they are stronger than the portable ones that are highly priced because of its portability. One does not have to seek the assistance of a service centre to replace a mouse, keyboard or monitor. But since the portable models have everything built in, it is mandatory that it is done by a professional repair assistant. Hence maintenance costs too are low with the desktop.

Since the computer is sturdy and heavy they can be over ruled in case of a theft in the home, whereas the portable is the first attraction to an intruder. Since the portable ones are carried from place to place often the danger of it being dropped is high, unlike the desktop computer that remains stable in one place.

Over heating of a Raspberry Pi 3 computer is ruled out since it has a lot of vents at the back of the monitor, whereas the portable one has just one vent at the back and the remaining are under the keyboard which is placed on a table, thus blocking the computer and resulting in over heating of the machine.

A desktop is definitely more useful than a laptop.

A laptop is useful tool in many ways, especially when you are travelling and have a lot of urgent and important jobs to be accomplished, the desktop can never replace a laptop. But

this does not always happen, or even if it does, if one is into a big business one would use the laptop and the mobile to leave messages to the office staff to do the pending jobs. The office staff would definitely use the desktop computer that is more economic and easy to handle. It is sturdier too and easily accessible.

A desktop computer is cheap, sturdy and long lasting with less to zero maintenance costs. If the user has an idea of using this exclusive machine properly it would prove to be the greatest asset. With a desktop computer at home children and home makers have a free access to do work on it without fear of it getting destroyed.

Children love to play computer games and surely no parent who is into business would lend the laptop to a child to play games. The desktop-computer is a ready and inviting appliance for the entire family.

The Importance of Computer Literacy

The world is running on computers and so are we!

When computers are being used in almost all areas of life, it becomes crucial to be a computer literate. Many of us are learning computers as an obvious task, however there are still some who need to be acquainted to it.

Computer literacy can have different meanings for different people. While for some it may just be about knowing Internet surfing, for others it will be the easy use of Microsoft Office and for a few it may be the knowledge of a complex technology.

Computer skills can be divided into three segments, basic, intermediate and advanced. The basic skill includes tasks like switching on the computer, using mouse to interact with elements on the screen, using the computer keyboard and shutting down the computer properly after use. In the intermediate category, a user should be proficient on word processing, the use of e-mail, use of Internet, software installation and navigation of computer file system.

An advanced user shall have knowledge of programming, problems of data security, use of computer for scientific research, fixing software conflicts and repairing computer hardware. As time is progressing, so is the importance of computer literacy increasing. Computers are now-a-days an inevitable part of the society and are being used in many fields.

We find the use of computers in places like schools, government offices, NGOs, private firms, banks etc. With computers a variety of tasks are accomplished, such as maintaining student records, doing research, modifying accounts, calculating salaries etc. It is tough to remember a task that cannot be done with computers, i.e. almost everything can be managed with the help of computing devices. Raspberry Pi 3 computers are being highly preferred as it allows you to do work faster and accurately.

There are many computer training institutes these days that specialize in computer literacy programmes. People who wish to become proficient with computer usage can enroll for a wide variety of courses. A lot of students enroll for courses like basic Microsoft training classes, language certifications, Oracle programmes, CCNA training, project management courses etc. The field of information technology provides numerous options, with students having a choice to pursue courses they have interest in.

There will be candidates who wish to make a career in web designing, web developing, multimedia, security and hacking etc. Though there are several choices to establish professionally in the IT sector, however it is about making an informed and right choice. Ones who venture into this field can hope of working with top giants like IBM, Dell, Accenture, Microsoft, Oracle, Intel etc.

There is no scarcity of jobs in the IT field as it is on full boom as always. There are numerous players in this foray as information technology is the need in almost all areas. It has also been observed that IT is least impacted in recession times as computers will always be needed to complete tasks. Hence it is wise to think of heading for a career in this ever flourishing sector.

Conclusion

Thank you again for downloading this book!

I hope this book was able to help you to acquire a great knowledge in approaching Raspberry Pi 3 computer systems.

Raspberry Pi 3 computer system is a critical computer system that must be able to meet its objectives even when operating under hostile or stressful circumstances. The above step by step guide when taking will help to ultimately prove effeciency.

Although it may be impossible to think of all the various events that can impact a critical Raspberry Pi 3 computer system but it is possible to reasonably define the possibilities.

Just wanted to say thank you once again for purchasing and reading my book.

Do check out my Author's Profile to view more books from me: http://amzn.to/2aVMXct

I truly do appreciate it!

Best Wishes,

Byron Francis