PROJECT

ON

WIFI RADIATION AND HOW TO CONTAIN IT

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FIRST YEAR

(Information Technology)

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Re-Accredited Grade 'A' by NAAC

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CERTIFICATE

This is to certify that

Mr.Daniel M Vanneri & Mr.Hitesh Dalvi

Have Satisfactorily completed the requirements of the Project entitled

"WIFI RADIATION AND HOW TO CONTAIN IT"

As prescribed by the University of Mumbai Under guidance of

Asst. Prof. ANSA JOVEL

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Daniel M Vanneri and Hitesh Dalvi

ABSTRACT

WIFI is a device which is capable of transmitting radio frequency waves which are used to provide network connectivity. WIFI device has adapter that encodes the data signal into radio signals , this signal is transmitted to an another device or a decoder also known as router. The decoder converts the received radio signals into data signals. WIFI operates on frequency ranging from 2 to 5 Ghz. Even though the WIFI is useful to us to give an access to internet and online service which are made available by number of companies in global level. The WIFI emits invisible radio waves or EMFs which are partially dangerous to the human body ,since we humans have capability to repair the damage ourselves, but continuous and direct exposure to radiation can damage physically and mentally too .Not just Human ,research have proved that the radiation from cell phones , WIFI and other electronic devices affect another living beings such as birds, animals and some micro-organisms .A long term exposure effect our health. As the radio frequency waves emitted by wifi can damage the growth of children and have also severe impact on the adults too.But in growing technology we may neglect the adverse affect to which are caused by the networking. But using simple techniques we can mitigate the EMF exposure. The WIFI radiation from Routers and other devices can be neutralized or can be reduced using several methods that we came across our research .The ways through which the radiation from the WIFI and other devices can be reduced are as follows:-

Turning of WIFI.

Earthing.

FARADAY'S cage.

Introducing Negative Ions.

By using above mentioned methods we can reduce the negative impact on us.

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CHAPTER 1

INTRODUCTION

WIFI stands for (wireless fidelity) and it is similar to the WLAN i.e wireless local area network **.**WIFI technology is basically used to provide network and internet access to the devices which are connected to the WIFI within the range. The coverage area of the WIFI is small as few room or few square kilometers . But in an office a large area is to be covered under the WIFI connectivity to provide the internet access to the devices for our use at that time a group of access points are overlapped**.**

WIFI works on the same principle as the other wireless devices. It uses radio frequency waves to send and receive data between the devices. The frequencies which are sent and received is completely different from the cell phones radios and car radios etc. In car radios system receives frequencies in kilo hertz (KHz) and megahertz (MHz) range, But WIFI transmits and receives data in Gigahertz (GHz).

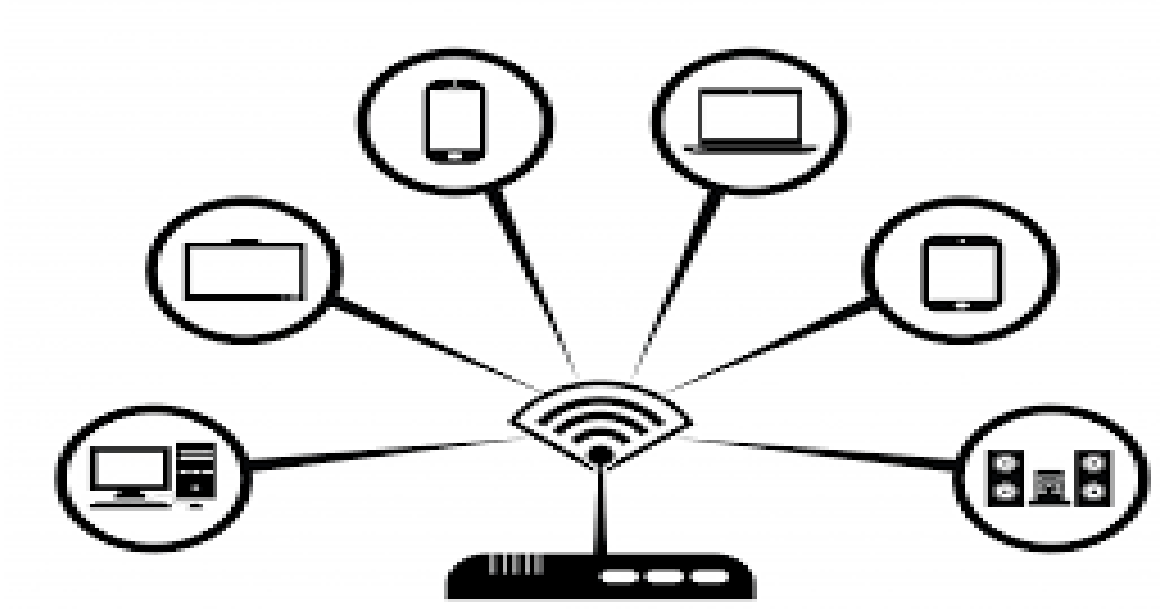

Fig. 1.1 WIFI

The waves sent by WIFI is of frequency 2.4GHz to 5GHz which are quite similar to the frequency used in microwaves. WIFI routers emits radio waves which are partially dangerous for human body ,since we humans have the capability to repair ourselves but what about receiving WIFI radiation from a whole tower where we are residing. Even though humans have ability to repair the damage to some extent and withstand to such a radiation , but longer

Exposure such a radiation can affect the humans. Not just Humans but other living beings also suffer from numerous problems due to radiation. As compared to humans birds and animals may not be able to defend themselves from the radiation ,they have large impact on their growth and lifespan which has lead to decrease in the number of species as compared to the last few decades.

Fig 1.2 Reduction of EMF

Main motive behind this Article.

Wifi router transmits radio frequency waves to connect to the other devices. This Wifi routers emf's which are partially dangerous for human body,since we humans have capability to repair the damage ourselves. But what about receiving wifi radiation from a whole tower where we are residing or a society. Even though we may be taking precautions to contain the wifi radiation by switching off it at night. We must be thinking that we are safe from the radition since we have stopped our wifi at night. But what about others we still receive wifi signals from other users so basically we are under the radiation exposure of other wifi users . So in our research we found some methods which will help us to mitigate the radiation emitted from the wifi without eliminating the wifi as whole .

Fig 1.3 Wifi and steps to reduce negative effects .

WHAT IS WIFI?

WIFI is a family of wireless networking technology based on the IEEE 802.11 family of standards ,which is commonly used for local area networking of devices and internet access . The Wi-Fi was invented by NCR corporation/AT&T in Netherlands in 1991.WIFI is a wireless device capable of providing internet access wirelessly. WIFI is basically a electronic device consisting of an antenna connected to internet and a series of devices used for communicating wirelessly. The WIFI technology may be used to provide internet access and local network to devices that are with in the range of the WIFI router that are connected to the internet .The coverage area of one or more interconnected can extend from an area as small as few room to large area as few may square kilometers. There are battery powered routers to which include a cellular internet radio modem and WIFI access point.

Fig 1.4 Wifi connectivity

The coverage area of WIFI depends upon as per requirements such as in business and office places .We require an access to an large area which may be from the office building to few square kilometers surrounding the office building. In today's world most of the people has WIFI

at their houses which help them to connect with the other world by giving them access to the internet and online services in their devices such as Smartphones ,Laptops , pc's and tablets. WIFI provide service in public ,private ,homes ,business as well as in public spaces . coverage area of wifi also depends on the variants of wifi band width used in the wifi .

Fig 1.5 Variants of Wifi

There are two type of variants in wifi band width 2.4 GHz frequency and 5 GHz frequency . The 2.4 GHz frequency provides a large area under connectivity and has an optimal speed while the 5GHz frequency provides faster speed than the 2.4 GHz frequency but the coverage area of the 5 GHz frequency is much smaller than the 2.4 GHz frequency . The band width of 2.4 GHz frequency provides a speed of 750 mbps and that of the 5GHz frequency

provides a speed of 1625 mbps which is greater speed than the 2.4 GHz frequency . Hence the main difference between both the bandwidth i.e . 2.4 GHz and 5 GHz is that 2.4 GHz frequency gives an large coverage area and 5 GHz frequency provides more operating channels. The radio frequency waves which are emitted by the wifi router of 5GHz frequency has the higher rate of radio frequency emissions than that of the 2.4 GHz frequency wifi router . So with the increase in bandwidth of wifi the radio frequency emitted by the wifi router also increases .

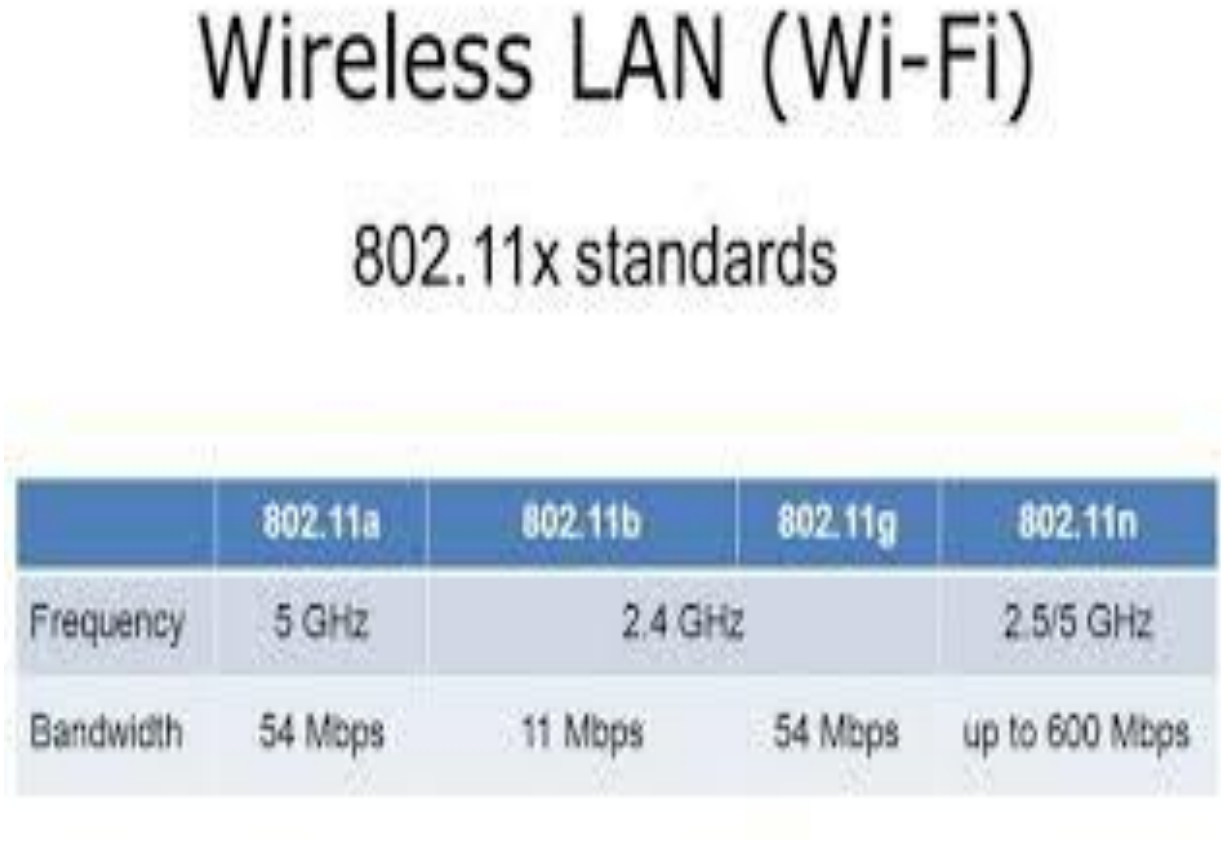

Fig 1.6 Wireless lan

WORKING PRINCIPLE:-

Wi-Fi is a high speed internet connection and network connection without use of any cables or wires. The wireless network is operating three essential elements that are radio signals, antenna and router. The radio waves are keys which make the Wi-Fi networking possible. The

computers and cell phones are ready with Wi-Fi cards. Wi-Fi compatibility has been using a new creation to constituent within the ground connected with community network. The actual broadcast is connected with in sequence in fact it is completed by way of

stereo system surf as well as the worth of wires with monitor to classification prone. Wi-Fi allows the person in order to get access to web any place in the actual provided area. You can

now generate a system within Resorts, library, schools, colleges, campus, personal institutes, as well as espresso stores as well as on the open public spot to help to make your company much more lucrative as well as interact with their own customer whenever. Wi-Fi compatibility can make surf with stare to company using their inspiring cable television much a smaller amount of force down

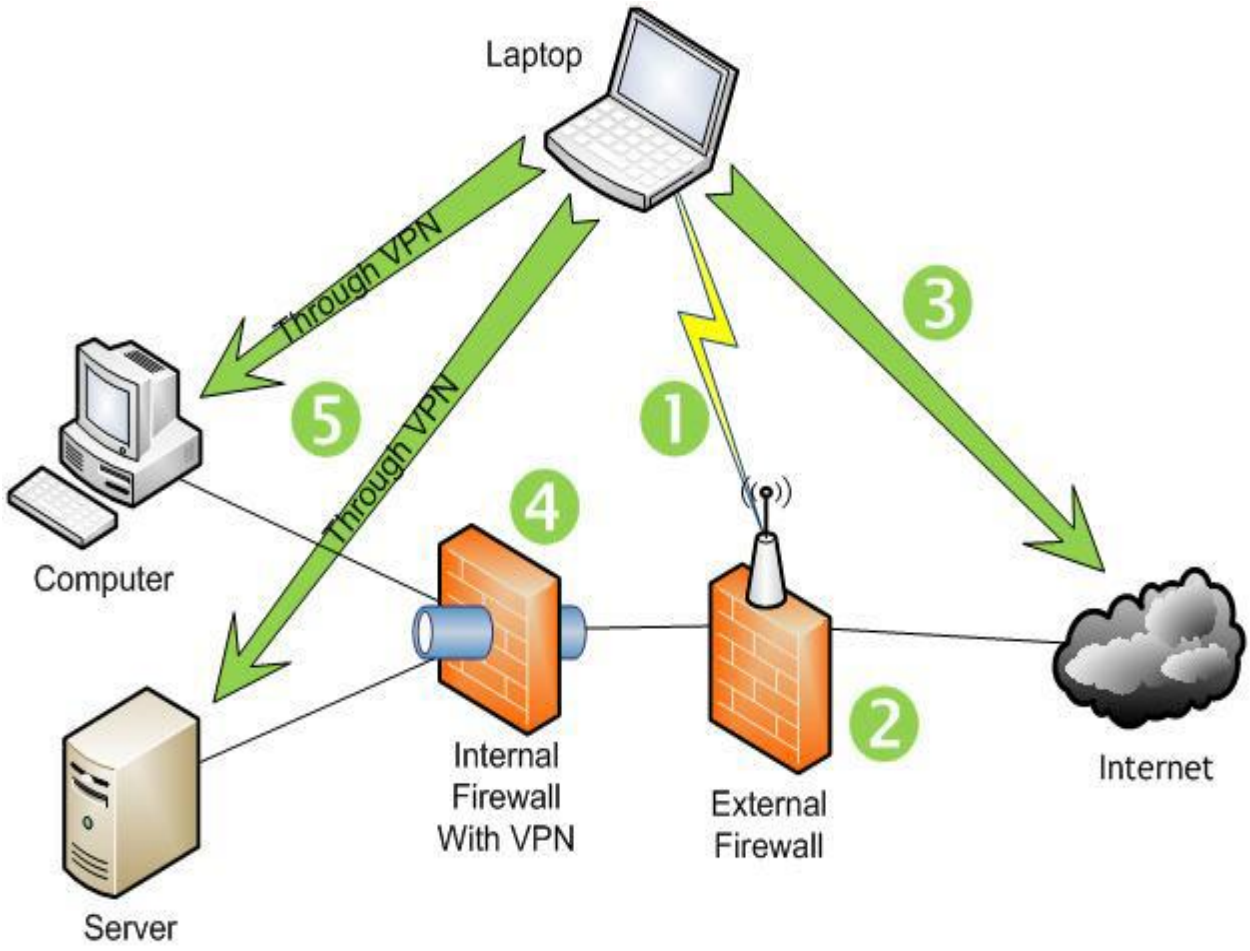

Fig 1.7 Working Principle

The radio signals are transmitted from antennas and routers that signals are picked up by Wi-Fi receivers, such has computers and cell phones that are ready with Wi-Fi cards. Whenever the computer receives the signals with in the range of 100-150 feet for router it connect the device immediately. The range of the Wi-Fi is depends upon the environment, indoor or outdoor ranges. The Wi-Fi cards will read the signals and create an internet connection between user and network. The speed of the device using Wi-Fi connection increases as the computer gets closer to the main source and speed is decreases computer gets further away.

Radio frequency emitted by the WIFI routers and that of the other devices such as car radios , walky talkies and weather radios ,etc are different .Since the frequency used by the car radios and weather radios, etc are in kilohertz and mega Hertz while the frequency used to transmit and receive is in wif radios is in giga Hertz Which is greater unit of frequency than the kilohertz and mega Hertz . The frequency used in wifi ranges from 2.4 GHz to 5GHz .This waves are quite similar to the frequency used in microwaves .The microwave uses the frequency of 2.450 GHz to heat the food . Where as compared to the microwave wifi uses the frequency of 2.412 GHz to 2.472 GHz frequency to transmit and receive data over wifi. Basically there are two variants of wifi according to the EMFs it emits i.e. 2.4 Ghz and 5 GHz frequency. The more the frequency the more better will be the speed of the internet . The radio frequency waves which carries the data encoded into the radio frequency waves which are received by the other devices wirelessly. The EMF is transmitted and received by the antenna the more the number of antenna better the speed of Internet to the connected devices such as laptops ,PCs , smartphones , smart TVs ,etc.with the increase in number of antennas of wifi router the range and speed of internet and it also increase the radio frequency waves which are emitted by the WiFi. When two wifi communicates with each other, they need a certain standards and protocols defined to enable them to communicate . The IEEE 802.11 refers to the set of standards that define commutation for the wireless local area networks .A computer ‘s wireless adapter transfers data encoded into radio frequency waves and transfers the data into the

antenna of user. When we use laptop’s, PCs , smartphone’s ,or tablet’s ,it connects to the internet via wifi by transmitting data packets on either the 2.4 GHz or 5.8 GHZ band .2.4 GHz offers a greater range and the 5.8 GHZ frequency offers more channels of operation

The standard IEEE 802.11 is further divided into four types of technology that are mentioned as below :

No	Tipe	Kecepatan	Frekuensi	Keterangan
1	802.11b	11 Mb/s	2.4 Ghz	b
2	802.11a	54 Mb/s	5 Ghz	a
3	802.11g	54 Mb/s	2.4 Ghz	b, g
4	802.11n	100 Mb/s	2.4 Ghz	b, g, n

Fig 1.8 Type of Wifi Technology

Types of WI-FI Technologies:

- Wi-Fi-802.11a
- Wi-Fi-802.11b
- Wi-Fi-802.11g
- Wi-Fi-802.11n

Wi-Fi-802.11a:

802.11a is the one of a series of wireless technology. That defines the format and structure of the radio signals sent out by WI-FI networking routers and antennas.

Wi-Fi-802.11b:

802.11b is the one of a series of wireless technology. 802. 11b support bandwidth 11mbps. Signal in unregulated frequency spectrum around 2.4 GHz. This is a low frequency compared with Wi-Fi-802.11a means it is working reasonable distance. It is interference with micro owns cordless phones and other appliance. It is low-cost; signal range is good using home appliance.

Wi-Fi-802.11g:

In 2002 and 2003, This Technology supporting a newer slandered products. It is best technology of 802.11a and 802.11b. The 802.11 b support bandwidth upto 54mbps and it use a 2.4 GHz frequency for greater range. This cost is more than 802.11b. It is fast accessing and maximum speed.

Wi-Fi-802.11n:

The 802.11n is the newest WIFI technology. It was designed to improve on 802.11g .The amount of bandwidth supported by utilizing multiple wireless signals and antennas instead of one. It supports 100 mbps bandwidth and increased signal intensity.

ISM bands

Wi-Fi is aimed at use within unlicensed spectrum – the ISM or Industrial, Scientific and Medical bands. These bands have been internationally agreed and unlike most

other bands, they can be used without the need for a transmitting license. This gives access to everyone to use them freely.

The ISM bands are not only used by Wi-Fi, but everything from microwave ovens to many other forms of wireless connectivity and many industrial, scientific and medical uses.

Whilst the ISM bands are available globally, there are some differences and restrictions that can occur in some countries

Standard	Service	Operating Band	Number of channels	Chanel Bandwidth
IEEE 802.11	Ad hoc network	2.4 GHz	78	1 MHz
IEEE 802.11.b	WiFi	2.4 GHz	14	5 MHz
IEEE 802.15.1	Bluetooth	2.4 GHz	79	1 MHz
IEEE 802.15.4	Wireless Sensor Network	2.4 GHz	16	5 MHz

Fig 1.9 standard of wifi

SUMMARY OF MAJOR ISM BANDS

LOWER FREQUENCY MHZ	UPPER FREQUENCY MHZ	COMMENTS

2400	2500	Often referred to as the 2.4 GHz band, this spectrum is the most widely used of the bands available for Wi-Fi. Used by 802.11b, g, & n. It can carry a maximum of three non-overlapping channels. This band is widely used by many other non-licensed items including microwave ovens, Bluetooth, etc.
5725	5875	This 5 GHz Wi-Fi band or to be more precise the 5.8 GHz band provides additional bandwidth, and being at a higher frequency, equipment costs are slightly higher, although usage, and hence interference is less.It can be used by 802.11a & n. It can carry up to 23 non-overlapping channels, but gives a shorter range than 2.4 GHz. 5GHz Wi-Fi is preferred by many because of the number of channels and the bandwidth available. There are also fewer other users of this band.

Fig 1.10 Advantages and Disadvantages of wifi

Advantages:

- Wi-Fi network communication devices without wire can reduce the cost of wires.
- Wi-Fi setup and configuration is easy than cabling process
- It is completely safe and it will not interfere with any network
- We can also connect internet via hot spots
- We can connect internet wirelessly
- Laptop can be moved from one place to another without affecting the network

Disadvantages:

- Wi-Fi generates radiations which can harm the human health
- We must disconnect the Wi-Fi connection whenever we are not using the server
- There are some limits to transfer the data, we can't able to transfer the data for long distance
- Wi-Fi implementation is very expensive when compared to the wired connection

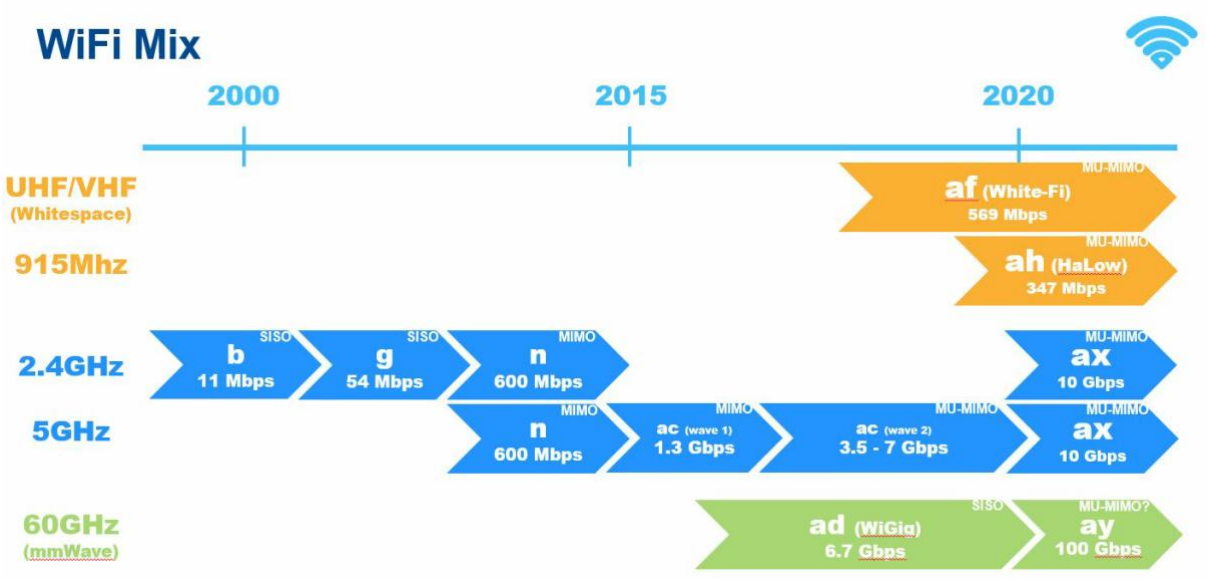

Fig 1.11 EVOLUTION OF WIFI

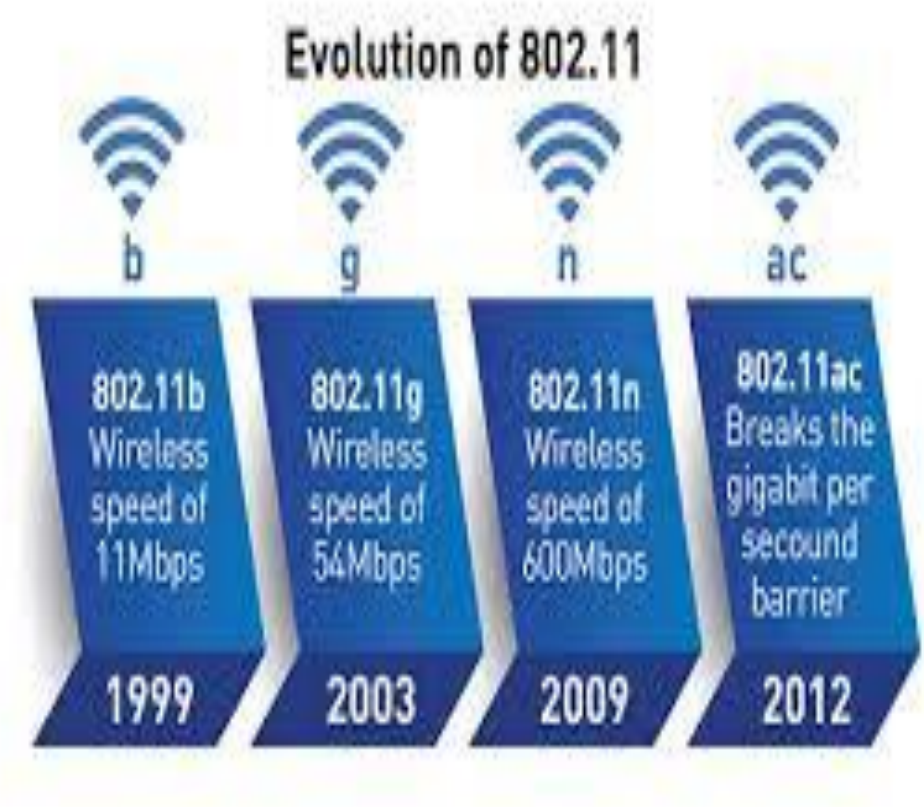

Fig 1.12 Evolution of 802.11

EVOLUTION OF NETWORK

Network was at first accessed using the cables which allowed data transmission to the devices but as the years passed people were introduced with new technologies like the optic fibre for increased speed.Then came the age of wireless networks with the introduction of bluetooth, Wifi ,etc .But more the network and speed increased the more we were dragged into the radiation world.

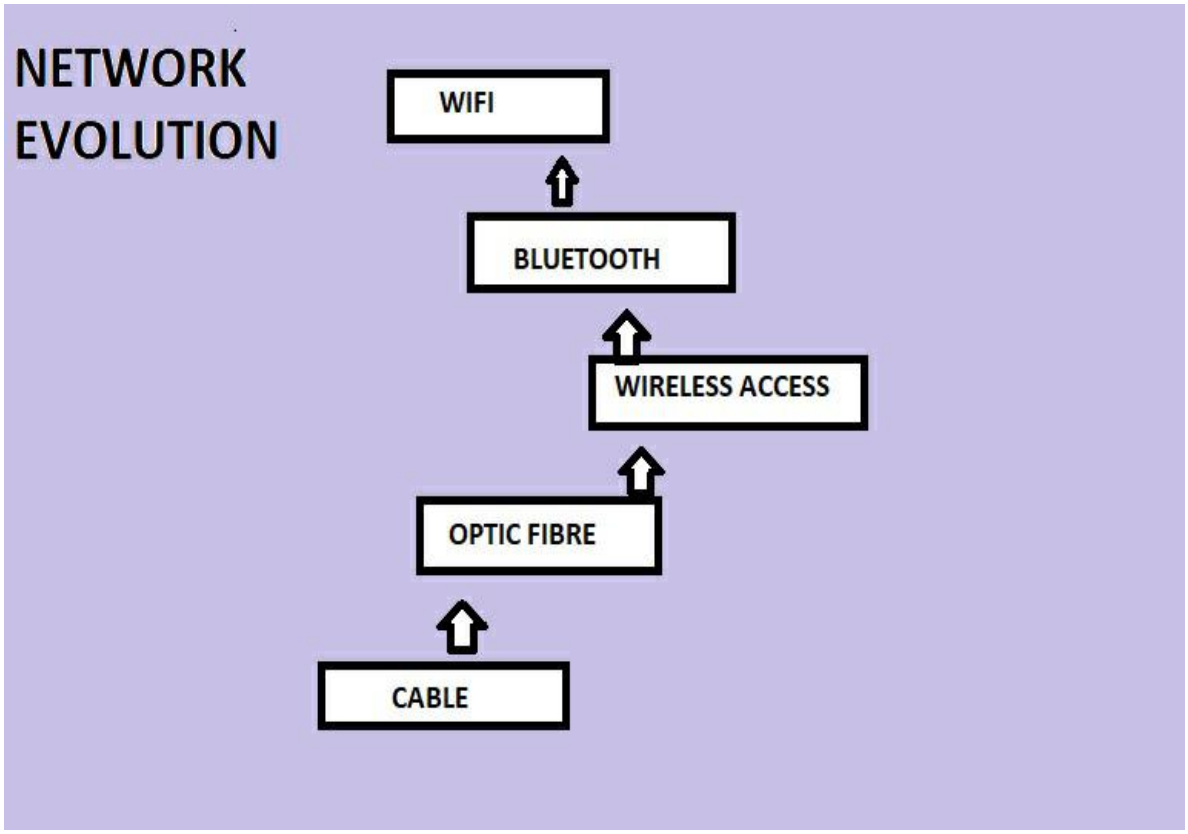

Fig 1.13 Network Evolution

The wireless networks have evolved rapidly for the past few years.There was a time when we used to have cell phones having only 2G network enabled sim cards but gradually it evolved from 2G to 3G and then to 4G.Now recently the telecom companies have

decided to launch the new 5G network.As these networks evolved the more the connectivity and speed increased as well as the radiation exposure also increased.

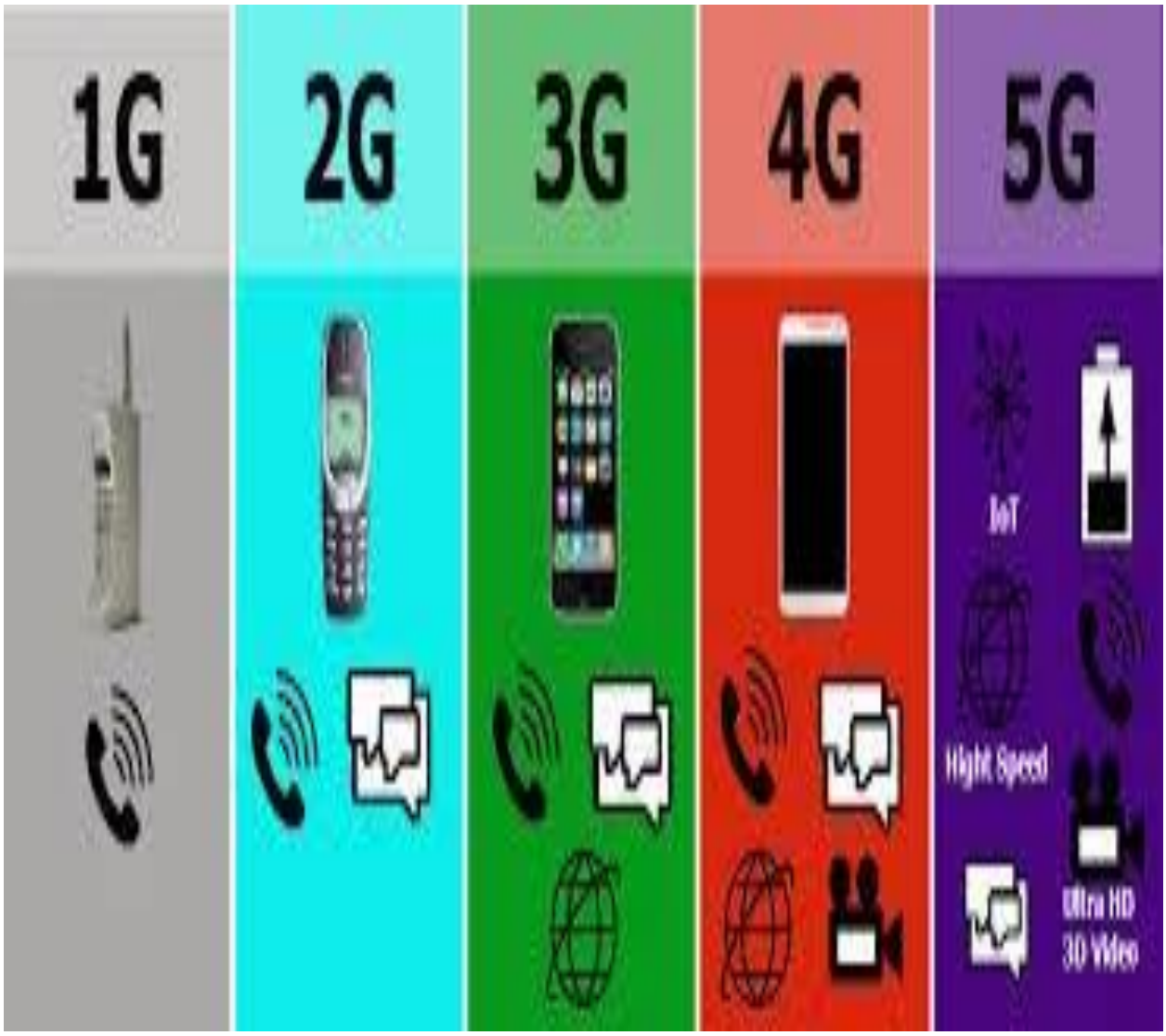

Fig 1.14 Evolution of mobile network

Wifi Routers and emission of EMF's in the atmosphere

Fig 1.15 Wifi Emission Range

While going through the number of publications and studies it has been clear that WIFI emits radiation i.e EMFs(Electro magnetic field) into the atmosphere caing cellular damage.

These radiations are the main cause for oxidative stress , sperm/testicular damage ,etc. One study reveal that it causes possible brain damage and lack of activity .

What are electromagnetic fields?

Electric fields are created by differences in voltage: the higher the voltage, the stronger will be the resultant field. Magnetic fields are created when electric current flows: the greater the current, the stronger the magnetic field. An electric field will exist even when there is no current flowing. If current does flow, the strength of the magnetic field will vary with power consumption but the electric field strength will be constant.

Electromagnetic waves are emitted by electrically charged particles undergoing acceleration, and these waves can subsequently interact with other charged particles, exerting force on them. EM waves carry energy, momentum and angular momentum away from their source particle and can impart those quantities to matter with which they interact. Electromagnetic radiation is associated with those EM waves that are free to propagate themselves ("radiate") without the continuing influence of the moving charges that produced them, because they have achieved sufficient distance from those charges. Thus, EMR is sometimes referred to as the far field. In this language, the near field refers to EM fields near the charges and current that directly produced them, specifically electromagnetic induction and electrostatic induction phenomena

CHAPTER 2

HEALTH RISKS CAUSED DUE TO WIFI RADIATION

1)Especially Damaging to Children

Fig 2.1 Damage to children

Exposure to radiofrequency radiation from WIFI can inhibit normal cellular development ,especially fetal development.A 2004 study linked exposure to delayed kidney development.Many studies have also proved that exposing children to WIFI radiation will have a negative impact on their growing tissues causing a greater risk of development issues.

2)Can cause Insomnia

Fig 2.2 Insomnia

Reports of insomnia relateds to WIFI radiation have showed that due to EMF exposure people are feeling difficulty in sleeping and there were observed changes in Brain Wave patterns.It is said that sleeping at night with the WIFI router switched on can cause difficulty in sleeping causing various problems like depression , hypertension , and even improper levels of melatonin.

3)Inhibits Brain Function

Research conducted with the help of MRI scans on brain have proved that the brain exposed to 4G radiation have reduced brain activity**.**

4)Greater Impact on Women

Studies have proved that impact of WIFI radiation exposure on Woman is more harmful as compared to men.Since after 45 mins of wifi exposure in women causes reduced brain activity as compared to men .

5)May put stress on your heart

A study involving nearly 70 subjects concluded that many of the participants experienced a real physical response to EMFs.The physical response was increased heart rate ,almost as if the person was under stress.

6)Sperm damage

Studies have proved that heat generated from laptop can cause damage to the sperm count in Humans. But at the same time WIFI radiation also causes sperm damage due to continue exposure.

7)May impact fertility

An animal study concludes that WIFI radiation may prevent egg implantation.The celluar damage caused due to wifi Radiation can cause damage to the egg development and can even cause to abnormal pregnancy or even failure.

Symptoms caused due to WIFI radiation exposure

1 . Fatigue

Fig 2.3Fatigue

The most comman symptom is fatigue , even after a rest full sleep at night , sometimes we might feel tired which may be because of the exposure to the wifi radiation over night .

2 . Trouble sleeping

Fig 2.4 Trouble sleeping

This is one of the most comman problem faced by many peoples at night . The EMFs emitted by the smartphones and wifi routers next to the bed can cause trouble while sleeping.

3. Tinnitus

Fig 2.5 Tinnitus

Tinnitus is also known as ringing in ears . The Tinnitus is defined as the hearing of an consistient sound in ears when there is no sunch external sound present , and can autually present as the hissing , a clicking , a roaring , or a number of othe sounds . This is commonlty with electo-hypersensitivity.

4 . Brain Fog or Cognitive Decline

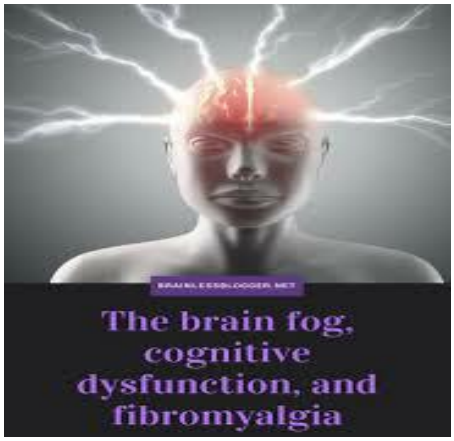

Fig 2.6 Brain Fog

Brain fog is a stage in which you maight feel that the memory has been declining , you may have trouble in recalling the names , places , or events which may be because of continuous exposure to the wifi radiation . It is noticed that the person suffering from the brain fog can have though time in concentration .

5. Stress, Agitation, Anxiety, Irritability

Fig 2.7 Stress

Many people may feel significant stress , anxiety and irritability when under the exposure of EMF radiation for a longer period of time . Many of these symptoms go away as soon as the radio frequency and dirty electricity radiation exposure is reduced.

6.Heart , heart Palpitations and Heart Arrhythmias.

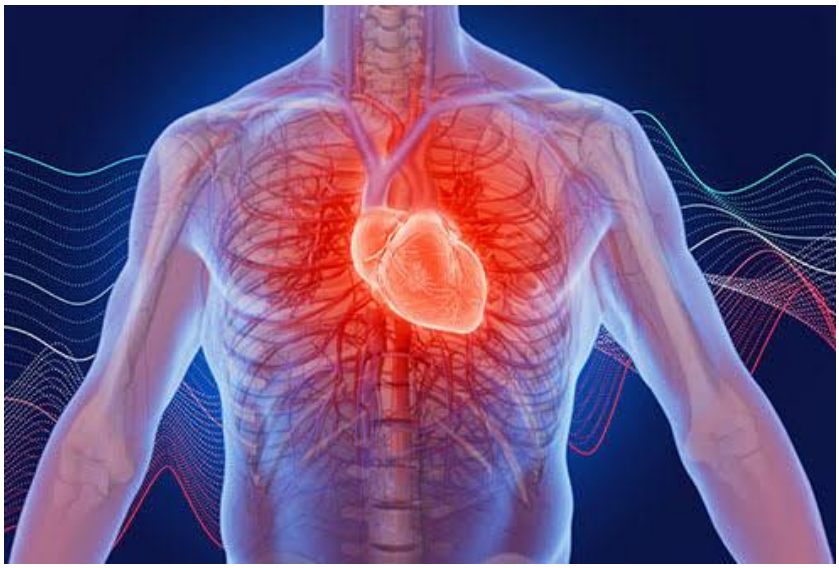

Fig 2.8 Heart Disease

Radiation from wireless technology such as the WiFi routers , smartphone,and other devices that operates wireless affects the blood, the heart, and the autonomic nervous system . It is found in different studies that are conducted regarding health problems caused by RF or microwave radiation. The brain sends commands to the heart to beat are done through the central nervous system. It is comprised of electrical signals sent through nerve cells or neurons. This radiation can cause serious disruption to our human electrical system and therefore our body functions. Arrhythmias is a condition in which the heart beats irregularly ,too fast or too slow.

7. Seizures

Fig 2.9 Seizures

A seizure is a sudden, uncontrolled electrical disturbance in the brain. It can cause changes in your behavior, movements or feelings, and in levels of consciousness. If you have two or more seizures or a tendency to have recurrent seizures, you have epilepsy .The brain contains billions of neurons (nerve cells) that create and receive electrical impulses. Electrical impulses allow neurons to communicate with one another. During a seizure, there is abnormal and excessive electrical activity in the brain. This can cause changes in awareness, behavior, and/or abnormal movements. This activity usually lasts only a few seconds to minutes.

CHAPTER 3

Ways to reduce WiFi radiation

The WiFi radiation not just affects humans physically but it also affects mentally too.so it is important to reduce the WiFi exposure as much as possible. The ways through which we can reduce the negative effects of WiFi radiation are as follows:-

1. Turn off Wi-Fi when not in use

WiFi transmits Radio frequency signal which may interferes with the brain during sleep.

So turning off the WiFi before going to bed can reduce the harm of WiFi radiation exposure to severe extent .

This helps the body to rest more deeply and relax .

By turning switching off the WiFi at night , you can effectively cut down the exposure by 33%.

Fig 3.1 Turning of WIFI

It is better to turn on WiFi when in use which will reduce the WiFi exposure only to a few hours a day.

The switching off of WiFi can be possible automatically by using the latest technology which will use to reduce the WiFi radiation .studies suggest that the biggest danger through WiFi radiation come at the night time ,the exposure to WiFi radiation at night can cause a significant reduction in cellular regeneration, rejuvenation and detoxification is impeded and notably melatonic production

2. Router guard Faraday cage

Electromagnetic radiation (Emfs) transmitted by the WiFi routers . It is invisible and is in microwave oven , cell phones , smart metres, FM and AM radio waves that pump music in radio , and in WiFi routers .

Fig 3.2 Faraday Cage

But sometimes the radiation through WiFi is undesirable and downright disruptive. That's where the concept of Router guard Faraday cage is used to reduce the emission of WiFi radiation.

The technology behind the router guard is Faraday cage. The router guard is what's called a Faraday cage in electrical terms. A Faraday cage is a metal enclosure formed by conductive material or by a mesh of such material. In Faraday cage the case of conductive parallel line metal is used which blocks the external static and nonstatic electric fields by channeling electricity through the mesh, providing constant voltage on all sides of the cage. Since difference in voltage in the measure of electrical potential, no current flows through the space.

A Faraday cage operates because an external static electrical field causes the electrical changes within the cages conducting material to be distributed in such a way that they cancel the fields effect in Cage's interior.

This phenomenon is used in case of Router guard Faraday cage to reduce the radiation levels of radio frequency waves. The Faraday cage cannot block the static or low frequency magnetic fields, but if the conductor used to make the Faraday cage is thick enough then the holes are significantly smaller than the waves length of the radio frequency radiation.

When the WiFi router is placed inside a closed enclosure of parallel line metal . It blocks the radio frequency and reduce the WiFi radiation upto 90% as that of the WiFi radiation. The parallel line metal cage block a large amount of the radio frequency escaping from the cage.

3. Earthing

The earth has its own heart beat also, known as the Schumann resonance, which refers to the natural frequency of the electromagnetic field to the planet and pulsates steadily at 7.83 Hz.

This frequency changes with the change in season it can reach up to 16.5Hz it, also changes with the earths other phenomenon too. In our brain, alpha waves span the frequency range of 7.5 Hz to 12.5 Hz which is almost similar to the natural frequency of the earth.

This alpha waves are present in our brain during the sleep, meditation, deep relaxation and dreaming etched. These waves helps to regenerate the cells and promote the healing in our body and proved to promote metal coordination, calmness , alternate, inner awareness, mind and body integration and learning and reduce blood pressure .

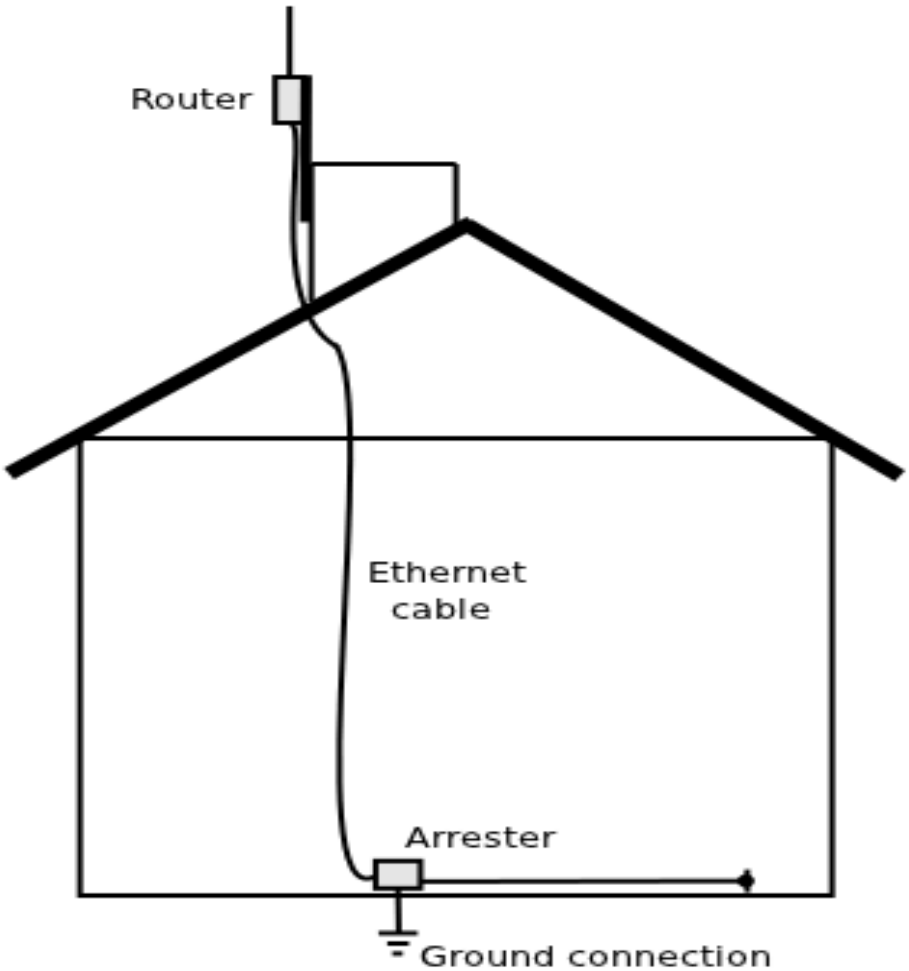

Fig 3.3 Earthing

Wireless devices emit unhealthy positive ions and this positive ions interfere with the body waves which are in our body, such as the brain waves and the electrical system that runs our cells.

The electronic devices such as WiFi routers , smartphone, laptops, tablets emits radio frequency waves . Earthing has been a good way of countering the effect of the WiFi radiation. The main disadvantage that is observed in the earthing concept the it reduces the speed of the WiFi by neutralizing the positive ions emitted by the WiFi with the earths EMFs.

4. Turning towards wire system.

It may sound daunting but it is possible and may help to reduce the health issues which may cause due to wireless devices.

One method is using Ethernet, Ethernet is a concept in which the number of devices are plugged into an already existing Ethernet hub by just expanding number of ports.

Long Ethernet cables can also help to connect the devices to reduce the harm of radio frequency radiation caused by the wireless devices.

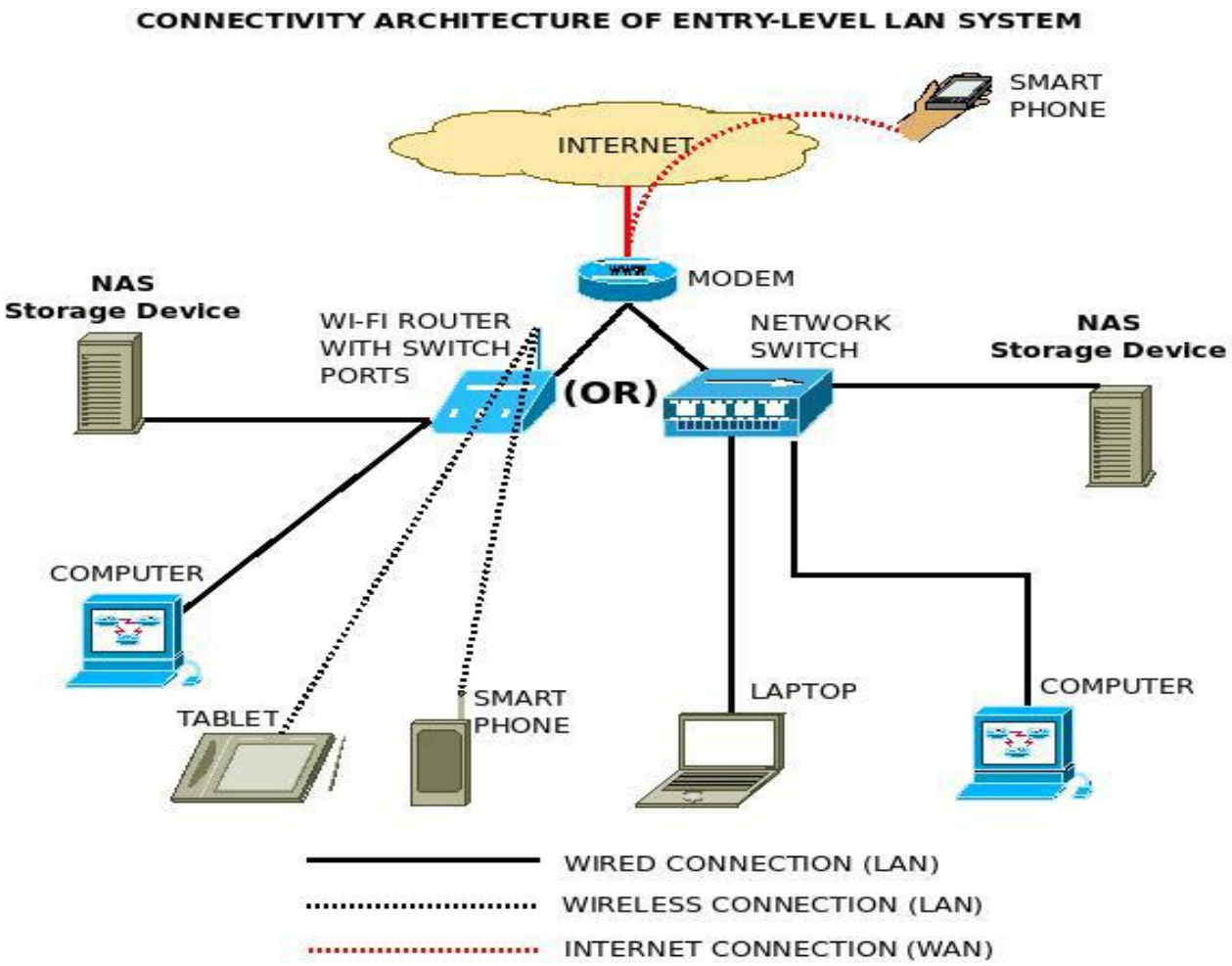

Fig 3.4 Wired Network

Another method is using Ethernet adaptors, in this it is possible to connect the devices that don't have the Ethernet port to connect such as tablets, smartphone and some computers. The wire peripherals such as keyboard mouse, headphones can be used instead of wireless technology to reduce the exposure to electromagnetic radiation. The main drawback of turning toward wired system and giving up wireless network is that the cost of wired network is much greater than that of the wireless devices.

5. Eat spices and take a magnesium supplement

Spices rich in phenolics, including cinnamon, turmeric, ginger, cloves, and rosemary are showing in research to help protect as well as repair DAMAGE The from EMF due to their protective capacity against peroxynitrites.

Peroxynitrite is a potent cytotoxic chemical that is formed naturally in the body by the interaction of nitric oxide
and superoxide radicals (which result from EMF exposure)

Also, since magnesium is a natural calcium channel blocker, it helps reduce the effects of EMF on your VGCCs. As a result, optimizing your magnesium level may help decrease damage from EMFs.

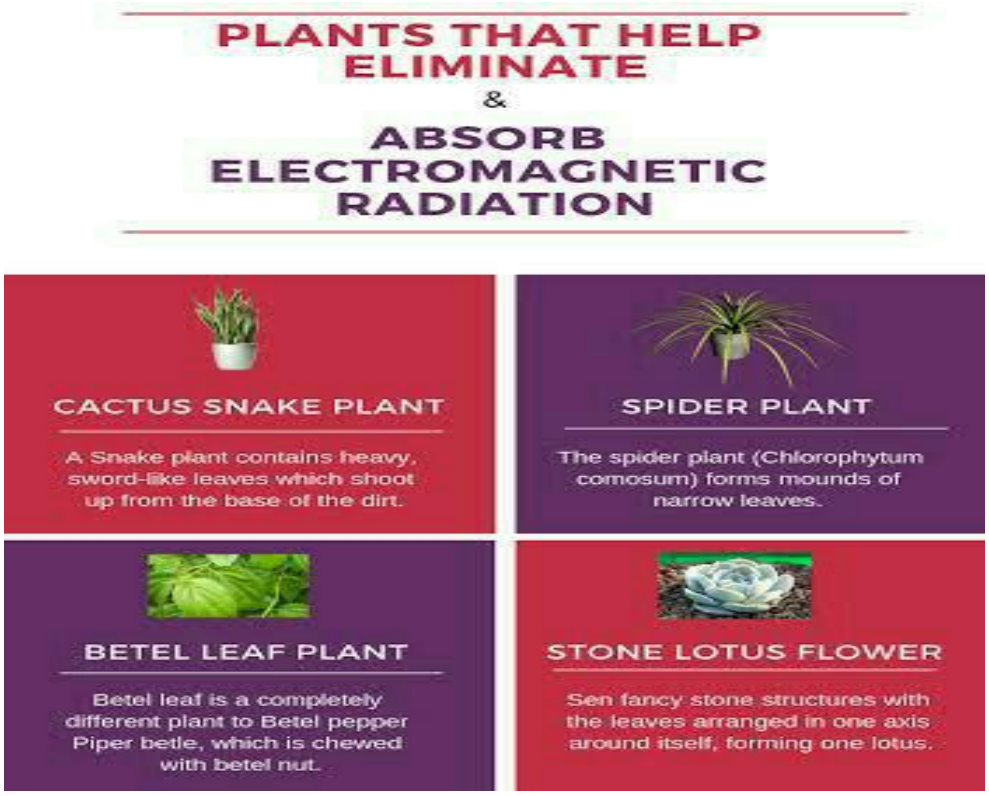

Fig 3.5.1 Spices rich in Magnesium

Fig 3.5.2 Spices rich in Magnesium

6. Use a Dirty Electricity Filter

Dirty electricity is produced when the electronic devices need to manipulate the electric currents into the format and voltage that the devices need.

This can create electrical surges throughout the wiring system.

Fig 3.6 Dirty Electricity Filter & Meters

The Greenwave filters remove dirty electricity, also known as electromagnetic interference (EMI) and dirty power, from building wiring before it radiates potentially harmful Electromagnetic Radiation (EMR)

Electronic devices, including desktops, WiFi Routers, phone chargers, and computers, etc all produce the dirty electricity, which can be a significant source of harmful electromagnetic frequencies (EMF) in the building in which we are residing .

In order to reduce the effect of electromagnetic frequencies , consider installing dirty electricity filters on outlets throughout the home and work environment.

7.NEGATIVE ION GENERATOR

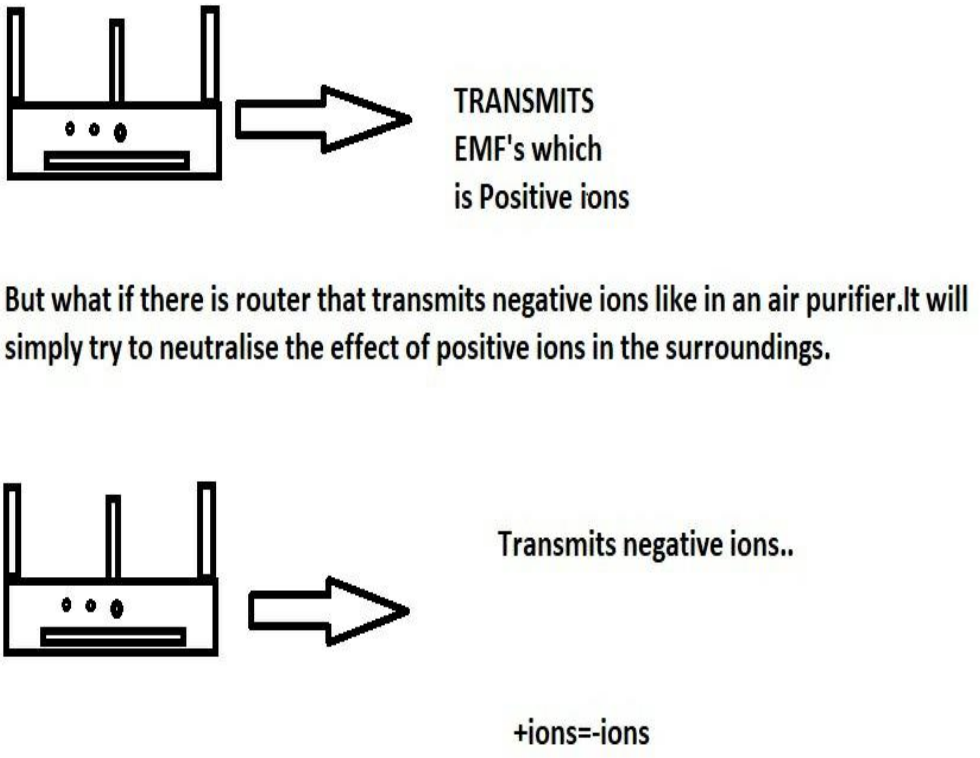

Fig 3.7 Negative ion generator

WIFI routers emits positive ions while transmitting data which is harmful for the humans as well as the surrounding life.

As the figure suggests consider a wifi router emitting positive ions and an another router emitting negative ions.

The negative and positive ions both will neutralize each other .

When the body recieves positive ions it causes damage to the body slowly and gradually.Even though body has capability to heal slowly but continuous exposure to positive ions can cause a number health problems which include cellular damage ,respiratory problem, Agitation , anxiety ,fatigue , tinnitus ,Brain fog ,, chest pain ,heart palpitations ,irritation to the skin ,cognitive decline , Heart Arrhythmias , vertigo, headache, eye problems, Arthritis, Sharp Stabbing Pains, Body Pain, seizures , Nausea, flu-like symptoms ,Sinus Problems and Nosebleeds, Respiratory Problems and Cough, Children Behavior Problems & Mental Effects Skin Rashes and Facial Flushing , Endocrine Disorders, Thyroid Disorders and Diabetes, sperm damage, testicular damage , an long term exposure may damage the women most than that to the men .

The continuous exposure to radiation can cause cell deaths, chromosome aberrations , cell stress , DNA breaks ,kill brain neurons , and even pre mature cell aging . Hours of exposure to negative ions may help to reduce the symptoms of depression . High level of exposure to negative ions cause people with chronic depression and seasonal affective disorder to record lower scores on survey of their depression symptoms .

Shorter duration of exposure to negative ions may positively affect seasonal depression lower levels of exposure upto minimum 30 minutes or more is enough to help people affected by sad.

CONCLUSION

So throughout the article , we found out that the WIFI has become a vital part of our life . As it is used to provide to connect with the other world and to keep our self updated with the new technology and advanced networking . It is an integral part of work . But just like the coins has two sides , WIFI even though it is important in our daily life but it also has an adverse effects in our health and environment too . The radio frequency waves which are emitted by the WiFi routers are invisible and can not be seen by naked eyes and due to lack of knowledge about the severe damage it can cause. In our research we came across many websites and available information that WiFi radiation can damage the cellular DNA, harms sperm and can reduce the brain activities. We might neglect the harm that can cause to our healthby the radio frequency radiation emitted by the WiFi. It is not just harmful to us humans as well as for the birds and animals by endangering them. So in the end we came across that we can reduce the exposure to wifi radiation by using methods such as earthing the router , turning towards the wired networks , switching off the wifi routers when not in use ,and by introducing the negative ions . The best way to mitigate the WiFi radiation with out eliminating the need of WiFi is by limiting the use of WiFi and try to as less as possible which will help us to reduce the exposure to WiFi radiation and damage caused by it.

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