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Gi-Fi Wireless Technology

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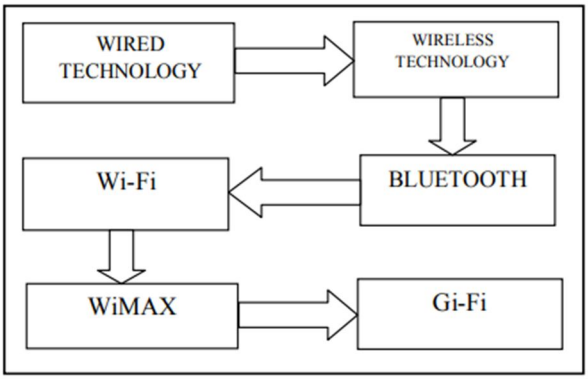
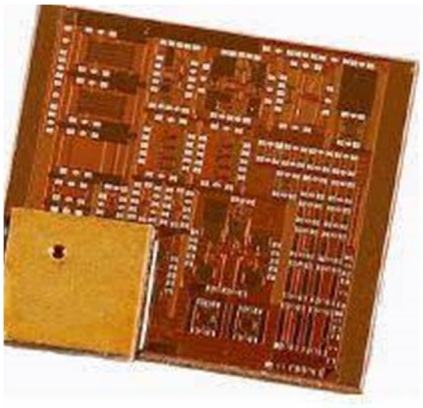
Abstract: ***Wireless technology is clearly taken over Easy to carry, improve productivity and accessibility. Despite the advantages of these current techniques, at an early stage Wireless technologies such as infrared and bluetooth were very important Slowly, it leads to a better invention, WiMAX. Immortal thirst and more quenches lead to new outbreaks Technology Gigabit Fidelity (GiFi). GiFi is also wireless Technology that gives you access to information at any time as needed. GiFi is one of the fastest wireless networks Technology to send video and audio in seconds Within a range of 10 meters. This paper examines GiFi Wireless technology. Also compare with other wireless ones It shows why technology and GiFi are better than others. GiFi consists of chips with the ability to deliver in a short period of time. Range multi-gigabit data transmission and in local environment Compared to other technologies on the market, it's 10. It will be twice as fast.***

I. INTRODUCTION

Wireless networks allow people to communicate and Wirelessly access applications and information. wireless Networks have been around for years. Of course, mobile phones are also a type of wireless phone. Popular with communication and interlocutors Each other all over the world. Example: Wired-based network, or Fiber optics, wireless networks send information Between computing devices. WiFi hotspot is created Install an access point to your internet connection. access The point functions as a base station. Use a WLAN-enabled device Hotspots to which devices can connect wirelessly. Maximum for a single access point 30 users can work in the range of 100-300 Foot. Many access points can connect to each other via Ethernet cable for creating a single large network.

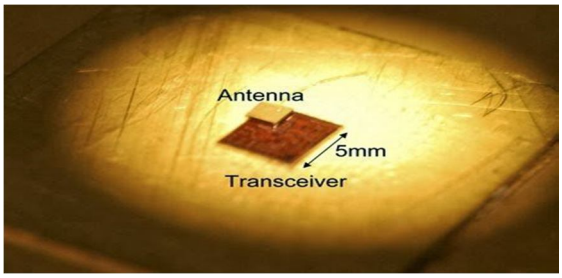


That's the most important and important component of the GiFi system Subscriber stations available on multiple access points. It supports the IEEE 802.15.3C standard using small Subscriber station antenna. For communication Between different computing devices, including phones & PDA supports millimeter-wave wireless PAN network.



GiFi (Gigabit Fidelity or Gigabit Wireless) is WiFi, but the data rate is 10 times higher than it is now Highest wireless transmission speed and very low cost (ie) 1/10 of the cost), conforms to IEEE standards 802.15.3C. GiFi was developed by researchers University of Melbourne, Australia as the first walkie-talkie Manufactured on chip using CMOS (Complementary metal oxide semiconductor) process. Or Single chip measures about 5mm2 chip with 1mm antenna Operates at a frequency of 60 GHz and Approximately 2 milliwatts or less during operation.

GiFi wireless technology has data rate More than 1 terabit per second (ie 1 billion bits). NICTA (National ICT Australia Limited) Research Team For this, select the unlicensed 5674GHz frequency band Therefore, technology allows GiFi speeds up to 5 Gbps. For wireless transmission of large videos and other information Within a fraction of a second internally – Usually within 10 meters. GiFi can be used as follows Backhaul of mobile data via 3G and 4G networks Vendors may offload some data, especially major Cities where mobile networks are frequently used Traffic jam.



New Gigabit Wireless System Offers Multi-Gigabit Wireless technology that eliminates the need for cables Over 100 among household appliances Faster than current short-range wireless technology Bluetooth, WiFi, etc. This high technology.The level of frequency reuse can satisfy communication Needs of multiple customers in a small geographic area region.

A. Gigabit Wireless Features

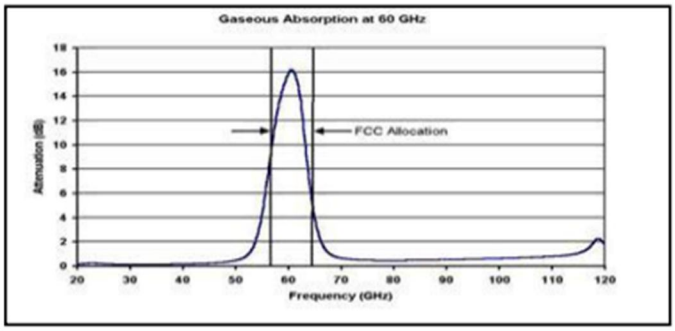
This GiFi technology enables wireless uncompressed high resolution content and operates over a range of 10 meters. No intervention. The Gifi chip has a flexible architecture. It Very portable and can be installed anywhere. The entire transmission system can be installed at low cost A single silicon chip running on an unlicensed 5764 GHz spectral band. With GiFi technology The future of information management, easy to implement With a small form factor.

B. Capacity of High Speed Data Transfer

The data transmission speed of Gigabit wireless technology is Gigabit / sec. GiFi speed is 5Gbps. It's 10 Double the data transmission of existing technologies. Providing higher data transfer speeds GiFi. The entire High Definition (HD) movie Transferred to your mobile phone in seconds Then you can upload the movie to your home computer over the phone, Display the screen at the same speed.

C. Interference in Data Transfer

Transmit using 60GHz millimeter wave spectrum data. It has an advantage over WiFi. WiFi Part of the spectrum is becoming more and more crowded and shared Waves on leading cordless phones and other devices Interference and slow speed. But millimeter wavespectrum (30-300 GHz) is rarely used and The new chip is potentially 100 times faster than one. Average WiFi home technology.



D. Provides High Security

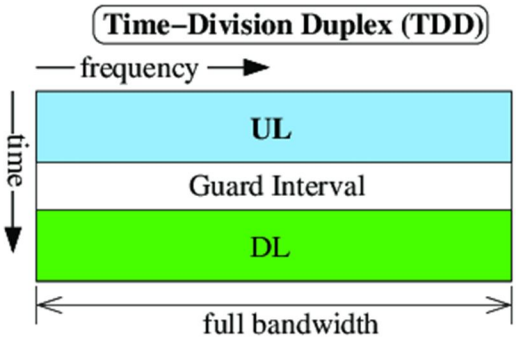
GiFi technology is based on IEEE 802.15.3C Standard is optional, so it offers higher security Link-level and service-level security. From point to point. A wireless system operating at 60GHz is used Many years by the intelligence community By the military for security communications and satellite-to-satellite communications.

II. WORKING OF GI-FI

Here we use TDD for both sending and receiving data files are converted from IF to the RF range of 60GHz With two mixers. The incoming RF signal is turned off first It is converted to an IF signal centered on 5GHz and then converted to normal. Data area, here we use a heterodyne structure for this A process to prevent leaks due to direct conversion. because Availability of 7 GHz spectrum, all data is transmitted Within a few seconds.

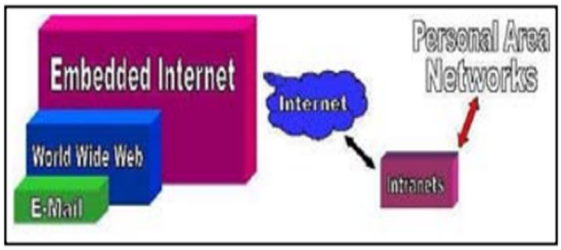
A. TDD(Time Division Duplex)

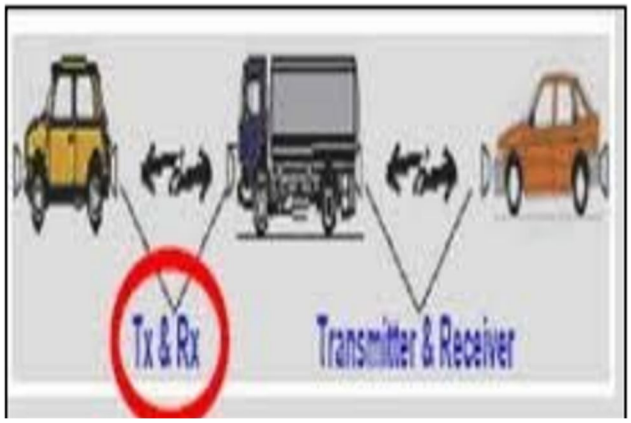
Time Division Duplex is a time division application Multiplexing to separate forward and return signals. It Emulates full-duplex communication over half-duplex Communication link. In this case, TDD has a big advantage. Here, the asymmetry of the data speed of the uplink and the downlink variable. More channel capacity as uplink traffic increases can be dynamically assigned.



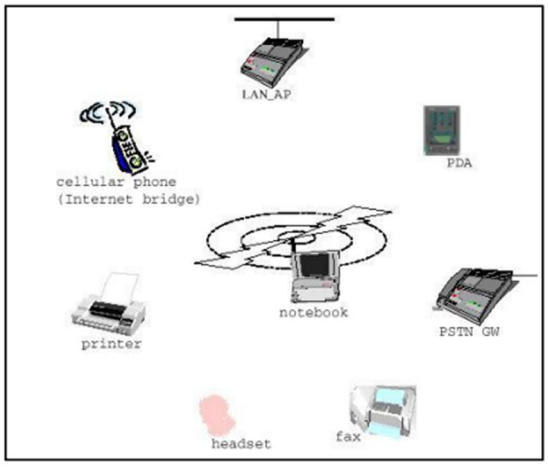
III. APPLICATION OF GI-FI

1) This technique works well with wireless pans Network, vehicle communication system, AD hook Information distribution via point-to-point network Extended media access control (MAC), imaging, etc.

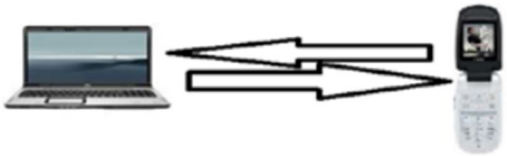




2) GIFI technology has many attractive properties that make it unique. Suitable for use in many locations and devices. GIFI technology. This offer can reduce chip size and consumption used to send and receive large amounts of different types of data application. This technology enables fast data synchronization for a fee, you can send the video quickly.



3) GIFI technology can transfer gigabit data Seconds & therefore it can be used for huge data files The transmission and this chipset will be replaced May develop HDMI Cable & Wireless Home & Office future.



IV. BENEFITS OF GI-FI TECHNOLOGY

The main advantages of GiFi technology are as follows:

A. Removing Cables

Cables have dominated the world for many years. Optical fiber Played a dominant role for higher bitrates and faster transmission. But when you attach the cable, it becomes one, It became more difficult and therefore led to wireless access. With the original limits of the data exchange rate standard Infrastructure scope and high cost still allowed WiFi to be a good alternative cable. GiFi technology eliminates the need for cables Connect household appliances and all devices Connected to send data wirelessly.

B. Cost of Chip is low

The GiFi chip uses only a small antenna with a width of 1 mm Power is less than 2 milliwatts. Allows for low cost chips Technology that can be easily integrated into multiple device. Gifi chips are probably cheaper to build. That way, you can make a mobile phone etc. with a small design. Small device without significantly adding technology raise the price. GiFi is based on open and international Default. Standard mass adoption and use low cost mass-produced chipsets reduce costs Dramatically, this is much less than it is now technology.

C. Faster Data Transmission

GiFi is a wireless transmission system that is 10 times faster Wifi and its chips to provide multi-gigabit data indoors Transmission in an indoor environment. It allows for transfer Up to 5 Gbit / sec audio and video data.

D. Privacy and Security

With GiFi encryption technology, privacy Content security. About 70% of companies WiFi is deployed in a secure firewall zone. Improved encryption because it continues to use the old WEP protocol, which does not effectively protect the application layer.

V. COMPARISON OF GI-FI AND EXISTING TECHNOLOGIES

Characteristics	Bluetooth	Wi-Fi	Gi-Fi
Specification Authority	Bluetooth SIG	IEEE, WECA	NICTA
Development Start date	1998	1990	2004
Primary Devices	Mobile phones, PDAs, Consumer, Electronics Office Industrial, automation Devices	Notebook Computers, Desktop Computers, Servers	Mobile phones, Home Devices, PDAs, Consumer, Electronics, Office, Industrial, automation Devices
Power Consumption	5 mw	10 mw	< 2 mw
Data Transfer Rate	800 Kbps	11 Mbps	5 Mbps
Range	10 Meters	100 Meters	10 Meters
Frequency	2.4 GHz	2.4 GHz	57-64 GHz

VI. FUTURE SCOPE

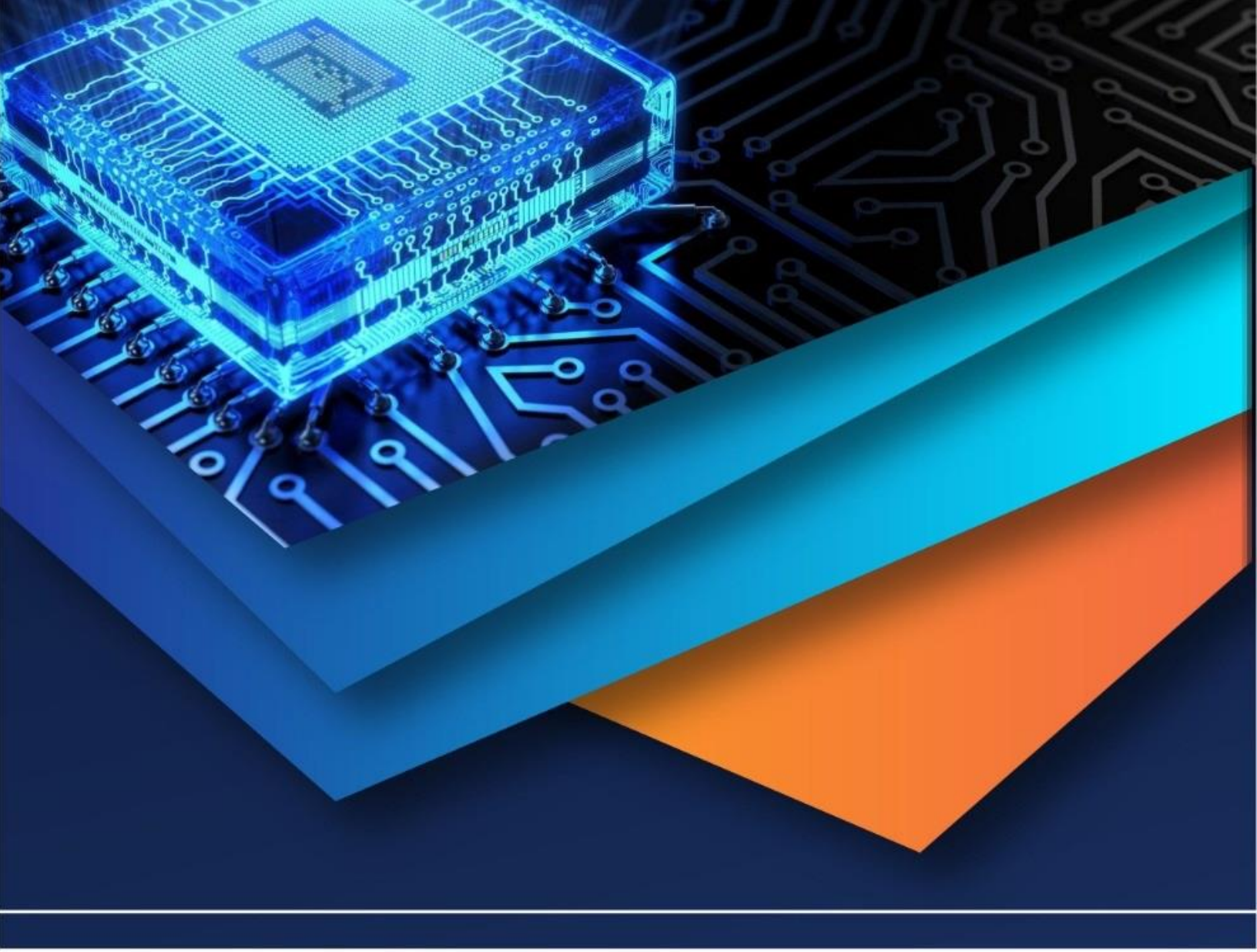
A fully integrated single-chip transceiver was manufactured, Tested on a GiFi chip and demonstrated using a walkie-talkie Integrated phased array antenna based on 65nm CMOS technology Sent to manufacture. GiFi technology the world's first fully integrated transceiver based on CMOS technology Operates at 60 GHz and offers new technologies for integration CMOS antenna. We can arrange a demonstration of GiFi technology. Great potential for consumers to change the way they use electrical devices in their homes. The GiFi team is looking for partners who are interested in commercializing the 60GHz chip, and as consumers gain more support for high-definition (HD) TVs, low-cost chips, and other interesting features of this new technology. The expected global market can be predicted. Is huge. We expect GiFi to become the leading wireless network technology in the coming years. By providing low cost, high broadband access and exchanging large files very quickly in seconds, you can develop future wireless homes and offices.

VII. CONCLUSION

In this paper Gi-Fi era is described with a view to permit wi-fi switch of audio and video facts as much as five gigabits according to second, ten instances the contemporary most wi-fi switch rate, at one-10th of the fee, typically inside a number 10 meters that operates at 60GHz at the CMOS process. This era eliminates cables that for decades curled the sector and affords excessive pace facts switch rate. The assessment this is executed among Gi-Fi and current wi-fi technology on this paper suggests that those capabilities in conjunction with a few different advantages including Low-fee chip, No Frequency Interference, Low Power Consumption and High Security which can be defined in element on this paper, makes it appropriate to update the prevailing wi-fi technology for facts transmission among gadgets which can be located withinside the brief distances from every different. Gi-Fi era has a good deal wide variety of programs and may be used in lots of locations and gadgets including clever phones, wi-fi pan networks, media get right of entry to manage and mm-Wave video-alerts transmission systems. This chip may also update HDMI cables and expand wi-fi domestic and workplace of destiny. Finally a number of the destiny works associated with Gi-Fi has given and it's miles conspicuous that greater studies need to be accomplished withinside the discipline of this new wi-fi era and its programs.

REFERENCES

[1] Ross, John, ―The Book of Wireless: A Painless Guide to Wi-Fi and Broadband Wireless, Second Edition, San Francisco, CA: No Starch Press, 2008
[2] Gowtham S Shetty, ―GiFi: Next Generation Wireless Technology, Seminar report, Visvesvaraya *9/5Technological university Belgaum, 2011
[3] S.Dheeraj, S.Gopichand, -Gi-Fi: New Era of Wireless Technology,[Online], Available at: http://www.yuvaengineers. com/?p=570, 2010
[4] P. Srikanth, J.R. Thresphine, (2014) "Innovative with Gi-Fi Technology". IJARCST (International Journal of Advanced Research in Computer Science & Technology), Vol.2, (Issue 1), pp. 2347-8446. Available: https://www.ijisme.org
[5] Marzieh Y., Mina Y., Afsaneh Y., and Amin M. (September, 2017), "Evaluation of Gi-Fi Technology for Short-Range, High- Rate Wireless Communication" UACEE International Journal of Advances in Computer Networks and its Security, Vol. 2, (Issue 3).
[6] Desai Vaishali J,Ramani Shrusti (2014)." GI-FI, the Technology of New Era" International Refereed Journal of Engineering and Science (IRJES) ISSN (Online) 2319-183X, (Print) 2319-1821 Vol. 3 [10] Savita Sangappanavar,Poornima GR, CK Narayanappa (2015). "Evolution of Gi-Fi Technology for the Upcoming Generation " International Journal of Engineering and Technical Research (IJETR) ISSN: 2321-0869 Volume-3
[7] Gulchakar, P. G., & Gawai, V. K. (2017). Gi-Fi Technology. International Journal on Wireless, Networking and Mobile Communication Innovations, 3(1).



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