

Some Funny Yet Relevant Title



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Introduction

Introduction here

Adaptive Frequency Hopping

What Is Frequency Hopping?

Adaptive Frequency Hopping (AFH) is a tehcnique where rather than using one single radiofrequency to transfer data, the frequency is constantly changing between a number of channels. This allows for both faster transfer speeds, and makes it harder for intruders to interfere with the signal.

Why Is It Adaptive?

The transmitting device is constantly monitoring the different channels to make an estimate of how good quality they are. For example, if one frequency is currently busy or being jammed, then it will simply use another channel.

Another General Box

Box for another common feature (add more boxes as needed)

Conclusion

Conclusion here

References

idk if we need this

Acknowledgements

Rito

Wi-Fi

Wi-Fi box here

Optical Fibres

Optical fibre box here

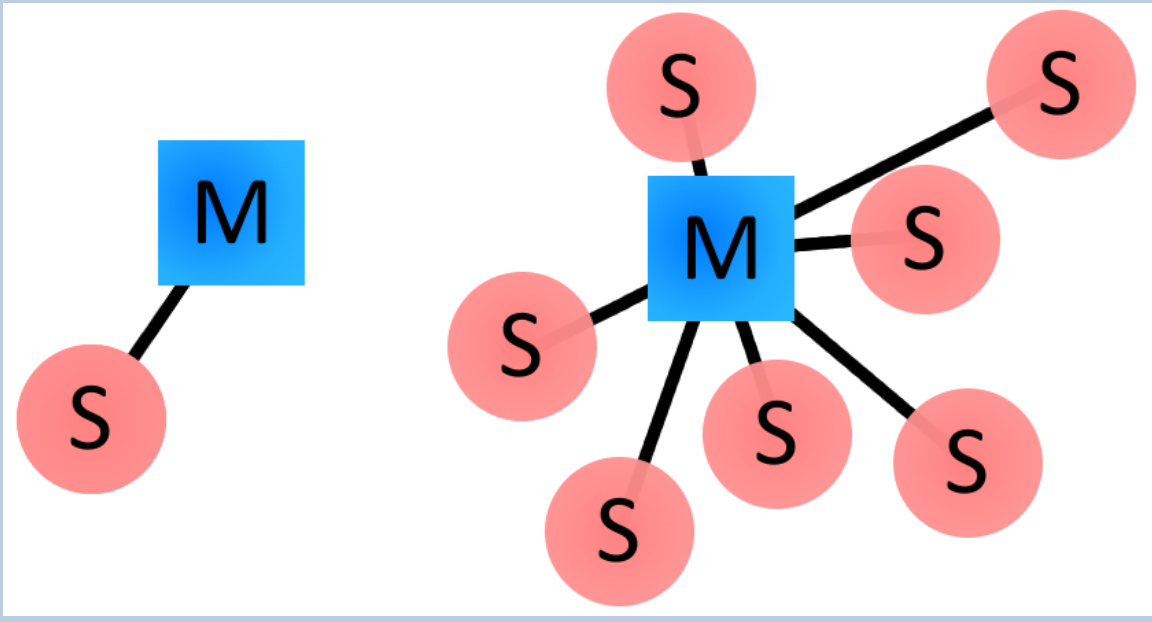
Bluetooth

Introduction

Bluetooth is a wireless communications technology for short-medium range data transfer

History Bluetooth was developed by the Swedish telephone company Ericsson AB in 1990, and it first hit the commercial markets in 1999

Master/Slave Topology Bluetooth follows a master/slave topology where there is a master device broadcasting data to a maximum of seven slave devices. This network of 8 devices is known as a piconet. The master will always default to being the device which initialised the connection, however master and slave roles can be exchanged given that both devices agree upon this.



Adaptive Frequency Hopping Bluetooth uses a technique called adaptive frequency hopping, which is explained on the left side of this poster.

Li-Fi

Li-Fi box here

Neutrino

Introduction

Neutrino messaging is a hypothetical form of communication currently undergoing research. Neutrinos are advantageous in communicative methods in that they pass through normal matter, but this causes them to be notoriously difficult to detect.

History

Neutrino messaging was first experimentally verified to work in 2012 by researchers from the University of Rochester and North Carolina State University.

The message was encoded with on-off keying, with 1 and 0 being represented by the presence and absence of a neutrino beam pulse, respectively.

Advantages

Unlike traditional forms of communication which rely on electromagnetic radiation, neutrinos are affected only by the weak force and gravity, meaning they can pass messages through virtually anything.

This is ideal for long distance communication - a potential use in the future is sending messages across vast expanses in space.

A present-day application is sending messages to nuclear submarines. Seawater can obstruct electromagnetic radiation, so submarines must extend an antenna to the surface, causing them to be easier to detect.

Disadvantages

The interactive nature of neutrinos causes them to be difficult to detect. Neutrinos also oscillate between 3 flavours - electron, muon, and tau.

Neutrinos have both particle and wave properties, so this can be represented by a neutrino switching between waves of different frequencies as it travels through space. This can be a problem for certain detection methods.

For example, in the 1960s, there was a discrepancy between the predicted and observed amount of neutrinos emitted by the sun. This was due to the detector not factoring in that electron neutrinos from the sun oscillated into different flavours en route to Earth

NFC

NFC box here