ADAPTIVE FREQUENCY HOPPING

A CLEARER AND MORE SECURE SIGNAL FOR COMMUNICATION

TECHNOLOGY FIELD

Communication Systems, Wireless Mobile Communications

IP PROTECTION

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RESEARCHER

Dr. Hyuck Kwon is a professor at Wichita State University with an exceedingly accomplished background in communication systems. Currently, Dr. Hyuck Kwon has 11 patented technologies in the field of communication systems. His research lab has been awarded over 3 million dollars in funding with cooperative partners such as NASA, U.S. Air Force, and Asian Office of Aerospace.

Communication is headed towards being totally wireless, and with this shift comes the increasing need for reliable reception and secure communication. Cell phones are the most prevalent form of communication systems found throughout the world today, and are now the main mode of communication and access to the internet. With communication becoming wireless, measures need to be put into place to avoid hijacking of the signal Currently, radio communication systems employ frequency hopping techniques to avoid jamming and detection, meaning the frequency of the transmitted signal is systematically changed within the range of the receiving device.

ADVANTAGES

Current frequency hopping methods are not adaptable since they leave signals more susceptible to jamming or detection. This invention is a frequency hopping algorithm that takes into account the probability of a given frequency being jammed, which increases signal clarity and security. Based on the probability of a frequency experiencing jamming, the algorithm generates an adaptive frequency hopping pattern with safer frequencies, resulting in a clearer and more secure signal.

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