

History of Technology

Lady Bluetooth and the Torpedoes

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British Navy people work during the Second World War with a Torpedo. At that time Weapons of Allied forces were indocile. Hedy Lamarr also could not change

Hollywood star Hedy Lamarr discovered wireless remote control in order to defeat the Nazis. With that she did not have success; however she acted as a harbinger of modern WLAN (Wireless Local Area Network). The daughter of a bank director and a concert pianist was educated in private school and trained on Clavier and Ballet. She was born in the World War 1914. She had a good life in very bad time and she grew up as a beauty.

That smoothed her up to 17 years the way to her longing for a cinema actress. After three side roles the young lady in 1931 stood before the camera of legendary icons Heinz Rühmann and Hans Moser.

Apart from her great performance outside the cinema world, Hedy Lamarr was called in Hollywood in 1942, she developed with the musician George Antheil; the theory for a

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disturbance and safe listening system for transmission of radio signals. The impressive foundation of today WLAN and Bluetooth system resembling the “frequency jumping method”.

Since 1990s the data network Wireless Local Area Network (WLAN) and equally on the frequency band 2,4 GHz operable short stretch radio system. Bluetooth developed the most important wireless transmission techniques of IT infrastructure. In the free usable frequency range between 2,400 GHz and 2,4835 GHz is however limited to a number of canals available. In spite of that in football stadium these could not connect thousands of people with other persons in the vicinity (proximity) or the WLAN parallel to them to catch hold of without that an unintentional bounded (connected) user gets at the same time some of running communication.

Possibly this is through a special encoding method – the frequency Hopping Spread Spectrum (FHSS) to German frequency jump spring methods. Simply said the active interconnected instruments change approve upto 79 times per second the transmission frequency within the 2,4 GHz – bands. The chosen frequencies must have minimum space of six canals, in order to prevent a overlapping. The complete system functions therefore, while the direct interconnected instruments to come to an understanding with the begin of the communication on the systematic order/succession of sequence springs. While the not actively participating instruments do not know the agreed spring rules, the method remains valid as listening-safe and immune against disturbance test.

As Hedy Lamarr and George Antheil came on their version of Frequency Spring/Jump) method they engaged themselves with the protection from radio signals against external disturbances for a special implantation objective. They saw in that presetting for the successful putting in per radio



Hedy Lamarr in a portrait photo In 1944. The Hollywood star was Very much interested in technique.

remove controlled torpedoes with which the actress in her free time deeply involved in thought. That someone whose face should have been pattern for Disney’s Little Snow White occupied with such a kind was like thoughts had different causes. As US Citizen Hedy Lamarr supported actively in the Second World War the fight of allied forces against Nazi, Germany.

Why Hedy Lamarr herself calculated for torpedoes interested is not transmitted reliably. That she was accepted with the frequency spring method as the basis for a remote control of weapons, her son Anthony Loder later

confirmed in an interview. Hedy came to the idea that instead of using only on radio frequency one could set up several frequencies and that one during the sending frequencies could change automatically. Through that the enemy could not find out on which exact frequency one sent.

The basis of this idea was all other as warlike: Antheil was at that time already a famous pianist componist. For his “Ballet Mecanique” he had in 1927 among others integrated eight pianos, 4 Xylophones, 2 aircraft propellers and various sirens. For a further project of this type Lamarr and Antheil reflected on that how 16 mechanical pianos and one film could be one another synchronized.

Their system from Radio signals which coordinate the end of perforated tape control of pianos, they improved finally for torpedoes. It applied one pair synchronous data movements one to the broadcasting station and one to the receiving station which from time to time change the radio timing of transmitting and receiving apparatus. So that an enemy without the knowledge of data movements would not be in a position to determine with which frequency a control impulse is sent. The German Patent and Marking Office from Lamarr and Antheil compiled Patent US 2292387. The inspiration/

enthusiasm) of US Navy for the idea held above all to the limit. They let the Patent in the archive disappear first ten years later it was used for the development of Sonarbojen, a submarine location (navigation).

While the US Navy held the patent lasting for decades under lock and key it remained unclear for a long time, whether the idea really originated from Hedy Lamarr. First in 1997 the actress was awarded for that the “Electronic Foundation Pioneer Award” 14 years after her death she was posthumously admitted in 2014 in the National Inventors Hall of Fame. Latest since she is known as “Lady Bluetooth” also

when the frequency Hopping in Bluetooth and WLAN developed by others.

Lamarr was interested not only for technique, but also for the condition of the actresses in Hollywood. Again and again she defended herself against that only in regard to her beauty to be patronized.

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