TASC Talk – Blame it on Hertz, Tesla and Frankenstein

By Dr Ihsan Lami of Buckingham University

Dr Ihsan Lami of Buckingham University gave September's talk at The Adstock Science Club all about the development of a device that defines the modern age more than any other, the Mobile Phone – "Blame it on Hertz, Tesla and Frankenstein" .

One could argue that the modern technological age was conceived in 1887 when Heinrich Hertz, who was born in Hamburg, Germany, performed an experiment which confirmed James Clerk Maxwell's equations for electromagnetism and proved that radio waves existed. His apparatus was simple, he produced an electric spark between two metal electrodes at one end of his laboratory, by using a device which produced a high voltage, while at the other end he had a similar set-up, again, with two electrodes a short distance apart but this time they were connected to each other by a simple loop of wire. Amazingly, when he switched on his spark generator a similar spark was produced between the electrodes at the other end of his lab. There was no physical connection between these two bits of equipment. Heinrich had proved that there must be something unseen transmitting the energy between one set of apparatus to the other without the need for a physical medium, Radio Waves!

Through further experiments performed by Nikola Tesla and Guglielmo Marconi who in 1897 sent the world's first ever wireless communication over open sea, radio communication came of age.

In those days radio aerials were large, tall structures sometimes reaching many metres in height and required an immense amount of power to transmit signals. Today most of us possess a Smartphone, these devices have somewhere in the region of up to 27 aerials etched onto their internal circuit board and use only a fraction of the power to achieve much, much more than these early pioneers could have imagined.

Amongst other things Ihsan explained how by using various different methods the position of your smartphone can be located to within a few metres. At present this can only be achieved in two dimensions, so locating the smartphone to a specific floor in a "high rise" is not yet possible. However, new technology currently under development, may, in the not too distant future allow for even this to be possible. The development of on-chip magnetometers, pressure/altitude and other type of sensors may allow smartphones of the future to know much more precisely where they are.

One wonders where and how far all this technology will go. Forget touchscreens and speech recognition the smartphone of the future may even be directly controlled by the power of your mind. Who knows? There seems no end to the possibilities. Watch this space.

Marius Stuart (TASC)