

A WATCH STRAP ANTENNA FOR THE APPLICATIONS OF WEARABLE SYSTEMS

MICANS INFOTECH



ABSTRACT

- A wearable antenna based on the metal watch strap is proposed. A prototype of a TISSOT classic watch is used for the demonstration.
- The width of the strap has only a little impact on the radiation patterns. However, the variations of the feeding location would dramatically influence the resonance frequency and the matching performance.
- The shapes and the graphic patterns of the wristband have contributions on the reflection coefficients as well as the radiation patterns.



EXISTING SYSTEM

- Smart watches, virtual reality glasses, sports bracelets together with various intelligent wearable monitoring devices have been thrown into markets. Internet of things is developing quickly.
- To connect everything and everybody is thus offered a possibility and is a trend that is on the highway to its realization. The key technology of this are has become a hot investigation topic.
- A circular slot antenna for 2.4 GHz WLAN on a smart metal watch has been investigated. The model of the watch had a wristband and a cylindrical housing with a circular surface, both made of metal only



PROPOSED SYSTEM

- A fractional bandwidth of 77.8% could be obtained when feeding to the right of the dial at 2.46 GHz, which falls into the ISM (Industrial, Scientific, and Medical) band.
- The main lobe is fairly wide in both E and H plane, which would enable the strap antenna to have a good adaptation for the various postures of the arm.
- The measurement results show good agreement with that of the simulations, which indicates it a potential option for the applications of wearable systems

MICANS INFO TECH



SOFTWARE REQUIREMENT

- Ansoft HFSS(High Frequency Structure Stimulator)
- CST

MICANS INFOTECH



REFERENCES

- Javier Lorenzo, Antonio Lázaro, Ramon Villarino, and David Girbau, “Modulated Frequency Selective Surfaces for Wearable RFID and Sensor Applications,” IEEE Trans. Antennas and Propagation, vol. 64, no. 10, pp.4447-4456, Oct. 2016.
- SaouWen Su and Yi-Ting Hsieh, “Integrated Metal-Frame Antenna for Smart watch Wearable Device,” IEEE Trans. on Antennas and Propagation, vol. 63, no. 7, pp.3301-3305, July 2015.
- Andrea Ruaro, Jesper Thaysen, and Kaj B. Jakobsen “Wearable Shell Antenna for 2.4 GHz Hearing Instruments,” IEEE Trans. on Antennas and Propagation, vol. 64, no. 6, pp. 2127-2135, June 2016

