

Develop passive spectrum monitoring solution for electronic warfare

Abstract

Passive spectrum monitoring solution device is essentially required for the telco industry and military. There are few objectives for this project. This futuristic device can detect any spectrum that lingering around in free space. With this device, it is lightweight and can carry to anywhere at any time. Moreover, it is cheap and affordable to be purchased. Simple circuit is used for the assembly of the hardware to ease for any troubleshoot. 1.8GHz rectangular patch antenna is used for receiving the input signal from the free space. In order to design the antenna, CST software is used to do simulation for the designed antenna. It can detect any spectrum from 24MHz to 1766 MHz as it using Rafael Micro R820T, which is RTL-SDR dongle for the tuner. Thus, the signal can be processed by using a microcontroller called as Raspberry Pi. Python language is used as coding for the software application. Raspbian OS, which is an operating system for the Raspberry Pi has been installed so that the microcontroller can be used as desktop like a computer. It acquired power supply from the powerbank, which can be carried around without getting attached by the power supply socket. A 3.5"LCD touchscreen attached on top of the microcontroller is used as the interface of the Raspbian OS and monitor the output of the project. Last but not least, SSH connection is used as Internet of Things (IoT) to act as remote control from the phone.