FRAUNHOFER INSTITUTE FOR INTEGRATED CIRCUITS IIS
DIVISION ENGINEERING OF ADAPTIVE SYSTEMS EAS

BLUETOOTH ANALYSIS SYSTEM FOR AUTOMATED TESTING

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Wireless connectivity is essential for almost all IoT devices. In the case wireless data transfer is needed over a few meters, very often Bluetooth Low Energy (BLE) is used, due to its comparably high transmission performance at very low energy consumption. Besides this, seamless and reliable connectivity is highly important to provide a satisfying user experience.

Developing IoT products with a powerful BLE connectivity, requires not only the selection of appropriate transceiver modules and protocol stack implementations, but also its correct configuration. However, without specialized analyzers the impact of configuration changes on the wireless traffic flow cannot be monitored and the link quality in BLE connections remains obscure. Transmission anomalies as well as bugs in the configuration and interfacing of the protocol libraries can be detected and diagnosed only with difficulty and at a very late stage. This results in undetected transmission disturbances that may compromise the user experience.

To support the development of IoT products with BLE interfaces, Fraunhofer IIS/EAS offers a BLE analysis system. The analysis system consists of a BLE sniffer capturing the surrounding BLE traffic and a PC analyzing the captured traffic. It can be rented and integrated in automated test systems as well as in manual testing to ensure an efficient exploitation of the BLE connection of IoT products.

Your Benefits

- Early detection of transmission disturbances, anomalies and connection reserves
- Efficient exploitation of the BLE connectivity, enabling additional services
- Risk reduction in the development of IoT products with BLE connectivity
- Prevention of system failures through early detection of potential interference sources
- Improved user experience due to verified higher product quality

Features

- Measurement based real-time analysis of surrounding Bluetooth Low Energy traffic
- Interactive dashboard showing comprehensive analysis results for each BLE connection, providing detailed insights in its reliability, performance, timings, connection setup, teardown procedure, occurring anomalies
- Capable of focusing analysis on BLE devices of interest
- Import and analysis of HCI logfiles from the BLE devices of interest
- Remote control of the analysis system via an IP-based API for integration in a test system
- Export of all analysis results as interactive plots and data (json format) for joint storage with test results

Dashboard of the Fraunhofer BLE analysis system

About us

The Fraunhofer Institute for Integrated Circuits IIS is a world leader in research on microelectronic and IT system solutions and services. Scientists at the institute's EAS division in Dresden are working on key technologies for cutting-edge adaptive systems that can independently detect, analyze and evaluate changes in their environment or in their internal structure. To this end, the researchers are developing innovative algorithms and powerful sensor components. Other key areas include the automatic analysis of large data volumes, artificial intelligence, IoT and the development of technologies for connected automation in production processes.

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