Abstract

The TRF6900 EVM FSK transceiver board is used at the University for laboratory measurements, but the original control software for the development board only works on old operating systems that are no longer supported by Microsoft (such as Windows 95, 98 and XP). Communication between the control software and the TRF6900 EVM is via a parallel port, which is no longer found in today's computers and the latest operating systems do not allow access to parallel port registers.

The purpose of my thesis is to make the TRF6900 EVM development board usable with today's modern operating systems. To achieve this, I studied the card's structure, protocol, and the control words generation. With these knowledges, I created a control software in LabVIEW that could replace the original Texas Instruments application. I created a graphical user interface (GUI) that supports the specification of the system parameters. I also implemented the control words generation, and the TRF6900 EVM communication protocol. A physical interface was needed between the computer's USB port and the parallel port of the TRF6900 EVM card. For this I used a NodeMCU microcontroller. In addition to serial port control, I also implemented the control of the board via Wi-Fi.

During the preparation of the thesis I examined the time difference between the microcontroller port register and sequential output assignments using an oscilloscope, and during the test phase I checked the signals sent by the system, which corresponded to the figure on the datasheet.

At the end of the thesis I discuss the possibilities of further development of my solution.