Abstract

Nowadays we can't imagine, that we don't immortalize an important event on a video recording. The devices for film-making are available to everyone, from the media to the ordinary people. It may occur, that we would like not only to record the video, but also visualize it at another place, for example on a display. If we use cameras in a special or extreme location, we often need for wireless signal transmission. In this thesis, I present the designing and the implementation of a hardware, which can receive SD (Standard Definition) video signals from the 5.8 GHz frequency band. In addition to the main function, the board uses an other radio-frequency band for the communication between the transmitter and the receiver. I connect the received video signals to a small display, where we can follow the real-time picture of the camera. The farther transmitter device and my receiver device send status-informations to a LCD display, helping the operator's work. My circuit is liable for other operator-side devices' power supplies, which voltages are produced from a 3S Lithium Polymer battery. Furthermore, I implemented a basic level battery protection for saving the battery from over discharging.

First I interpret the specification, then I plan the block diagram of the system. After it, I explain the criterias for the selection of the most important components, like radio frequency modules. Then I go step by step through the planning process, which starts with getting aquainted with the chosen design software's knowledge of services and setting up the project properties. I present the completed schematics in smaller logical sections and I describe the view-points of the design and the part-selection. I begin the design of the printed circuit board with prudent placement of the components, followed by the implementation of the wiring. The design ends with the generation of the output files (gerber files, BOM list). I describe the manufacturing of the printed circuit board and the process of testing the basic functions. I list the issues discovered during the testing and the possibilities for repairing them. Finally, I summarize the experiences and opportunities for further development. The manufactured prototype fulfills its function, it worked properly during testing and using it.