

Encryption Module for SDR wireless Communication systems

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Software Defined Radio (SDR) is one of the most important emerging technologies for the future of wireless communication services. They are realized using highly configurable hardware platforms. SDR is an evolving technology that facilitates all-purpose radios, different standards and protocols to be configured through programming. SDR can reduce the cost of manufacturing and testing while providing a quick and easy way to control and upgrade the product and take the advantage of new signal processing techniques.

Field Programmable Gate Arrays technology (FPGA) is an attractive option for implementing many of the tasks performed in SDR. Data encryption in SDR, is essential while integrating different Encryption engines inside an SDR system, is a challenging issue.

In this project a stream cipher Algorithm using two encryption Modules (Safer+ and LFSRs) will be designed, simulated and implemented on an FPGA. Controlling the use of the encryption algorithm will also be designed. Also, the control of the encryption algorithm and its initial settings will be software controlled. Finally the whole designed system will be hardware tested.

Students should be taking Digital VLSI Design and know VHDL design