

Graduation Design Project Proposal Form

Project #C8

Project Title: Design and implementation voice scrambler for low-cost wireless applications
Professor(s) Name(s): Dr. Saeed Aldosari
Number of Students: Two
Students Qualifications Good signal processing and software skills
Statement of Problem. Many commercial voice communication devices such as telephones and walky-talkies do not provide any form of security. Secure communication devices are usually expensive and restricted to military and government users and may not be available for normal users. In such cases, it is of interest to provide a basic form of security to prevent eavesdropping of private communications.
Brief Description of the Project The project will focus on designing and implementing a low-cost hardware/software system capable of processing plain voice signals to produce a scrambled, unintelligible signal. The complexity of the designed signal processing algorithm should be low so that it can be implemented on low-cost microcontrollers in order to reduce the overall cost of the system.
Objectives <ol style="list-style-type: none">(1) To get familiar with audio security concepts and scrambling techniques(2) To learn signal processing methods used to implement voice scrambling(3) To enhance the hardware/software design skills(4) To develop a voice scrambling product under cost/power constraints.
Technical Approach and Expected Deliverables The end-product is an electronic hardware that has a single audio input (for plain voice) and a single audio output (for scrambled voice). It should also have a simple user interface to enable the user to control the functionality and configure some parameters.