



COLLEGE OF ENGINEERING & TECHNOLOGY

Department: Electronics and Communications Engineering, Cairo

Graduation Project Description Form

Project Title: Design, Simulation and Fabrication for a Prototype Mine Detection Technique

Duration from mo/year till mo/year

Project Supervisor(s): Dr. Mohammed Hassan

Product Category

Algorithm_____ Hardware_____ Software_____

Standards:

Safety: UL, CE_____ IEEE _____FCC _____Other _____

Practical Realization Form

PCB _____ Firmware____ Embedded CPU Kit (ARM, ..etc):_____

PC Software _____ Ready-made Package_____ DSP Kit____ FPGA Kit__

VLSI Schematics ____ VLSI Layout _____ VLSI Silicon (ASIC)_____

Language

VHDL/Verilog_____ Matlab _____ C/C++/Java _____

Productization

Finished Product Form:_____ Possible Commercialization _____

Amount of funds needed for buying components: _____

IEEE GOLD Made-In-Egypt/Engineering Day: ____

ITAC (ITIDA) or NTRA Funding Application:_____

Testing

Functional____ Simulation____ Parameters____ Final Hardware_____Other:

Lab Test Setup

EMC _____ Environmental_ Microwave _____ Analog Lab_ Other:

CAD Tools (No unauthentic software is allowed):

Elective Classes Required:



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Abstract

The analysis and study of mutual coupling between two opposite microstrip antennas help to investigate an efficient method for mine detection technique. The study involves the effect of relative distance between two patches on the level of the mutual coupling between them. Then the effect of placing a dielectric media above the antenna system (to avoid the effective dielectric constant phenomenon), the system is then put over two materials in order to judge (in an approximate manner), the effect of these materials on the coupling level. Recording these responses, the effect of buried objects will clearly appear as it will affect the previous coupling level received by the receiving antenna. These results can be followed in steps to be applied as a mine detection technique. The antenna system was fabricated, measured and the results were compared with the simulations using both MoM, and TLM numerical techniques.



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References and Links