



## COLLEGE OF ENGINEERING & TECHNOLOGY

Department: Electronics and Communications Engineering, Cairo

### Graduation Project Description Form

Project Supervisor(s) : Prof. Amany Sabry Amin

Project Title: **a Smartphone-based sensor network for detecting traffic accidents**

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Duration from 9/2013 \_\_\_ till 7/2014 \_\_\_\_\_

#### 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)\_\_\_\_\_



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#### 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)*:



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Elective Classes Required:

**Prerequisite:** Software Programming Know logy



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#### Abstract

Wireless sensor networks are composed of geographically dispersed sensors that work together to monitor physical or environmental conditions, such as air pressure, temperature, or pollution. Wireless sensor networks are used in many industrial, social, and regulatory applications, including industrial process monitoring and control, environment and habitat monitoring, healthcare, home automation, and traffic control. Developers of wireless sensor networks face a number of programming and deployment challenges, such as networking protocol design, application development, and security models. Smartphones can help reduce the development, operation, and maintenance costs of wireless sensor networks.

This Project examines key challenges associated with developing and maintaining a wireless sensor network and presents a novel smartphone wireless sensor network that uses smartphones as sensor nodes.



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References and Links