COLLEGE OF ENGINEERING & TECHNOLOGY

Department: Electronics and Communications Engineering, Cairo

Graduation Project Description Form

Project Supervisor(s): Assoc. Prof. Dr. Mohamed Saad ElMahallawy

Assoc. Prof. Dr. Mohamed Bakr Abdelhalim

Project Title: Implementation of Efficient home automation system using Raspberry Pi kit

Duration from mo/year 9/2013 till mo/year 7/2014

Product Category

Algorithm____ Hardware √ Software √

Standards:

Safety: UL, CE_____ IEEE _____ FCC__

Other _____

Practical Realization Form

PCB _____ Firmware___ Embedded CPU Kit (ARM, ..etc): Raspberry Pi

PC Software _____ Ready-made Package_____ DSP Kit___ FPGA Kit__

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

Language

VHDL/Verilog_____ Matlab √ C/C++/Java √

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Productization

Finished Product Form: Board Possible Commercialization _____

Amount of Funds needed for buying components: √

Testing

Functional√ Simulation√ Parameters___ Final Hardware√

Lab Test Setup

EMC _____ Environmental Microwave _____ Analog Lab_

CAD Tools *(No unauthentic software is allowed):*

Elective Classes Required:

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Abstract

Home automation is the automation of the home, housework or household activity. Home automation may include centralized control of lighting, HVAC (heating, ventilation and air conditioning), appliances, security locks of gates and doors and other systems, to provide improved convenience, comfort, energy efficiency and security. Home automation for the elderly and disabled can provide increased quality of life for persons who might otherwise require caregivers or institutional care [1].

The popularity of home automation has been increasing greatly in recent years due to much higher affordability and simplicity through smart phone and tablet connectivity. The concept of the "Internet of Things" has tied in closely with the popularization of home automation [2].

The Raspberry Pi is a credit-card sized computer that plugs into your TV and a keyboard. It's a capable little PC which can be used for many of the things that your desktop PC does, like spreadsheets, word-processing and games. It also plays high-definition video [3].

In this project we propose to implement a home automation system that utilizes the capabilities built with the Raspberry Pi kit by adding internet/mobile connectivity features, adding speech recognition capabilities to the system as well as adding interactivity with home residents through video streaming capabilities.

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References and Links

[1] https://en.wikipedia.org/wiki/Home_automation

[2] http://en.wikipedia.org/wiki/Internet_of_Things

[3] https://en.wikipedia.org/wiki/Rasberry_pi