HIGHER TECHNICAL INSTITUTE

COURSE IN COMPUTER STUDIES

DIPLOMA PROJECT

AUTOMATED DATA ACQUISITION AND LOGGING FOR A FARM

CS/403

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by

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ABSTRACT

The purpose is to create an automated data acquisition and logging system for a farm that would aid the agricultural community in collecting and reviewing data relevant to their tasks; thus helping improve production.

Areas of interest on the outcome of such a system are primarily small farms and ranchers in Cyprus. However, the system could be easily modified to suit many needs.

The main idea behind this project is a cost-effective and modifiable set of both hardware and software which would attract customers because of its ease-of-use and customization capabilities. It should be able to suit individual needs. For this reason interviews were held with farmers and cattle breeders, who deal in different product. The goal was to locate similarities. This would be the basis for which to later build on, taking into account various dependencies.

The authors' will present a 3D model created that combines both crops and animal breeding. They will also show how the price of a commercial system can be more harmful for the common farmer as opposed to helpful, going so far as attempting to prove that a low-cost system can operate just as well and actually improve quality of work. The authors' will also present a detailed report analysis of the work that was followed, created detailed planned sheets of the final system and finally present a fully operational system created for the specific purpose of the demonstration.

The technology used throughout this dissertation is the popular field of Wireless Sensor Networks, also known as "way-small-computing"

so-called by the small nodes used, motes, gumstix etc. What will later be demonstrated is the flexibility and power that these small computers provide and how they can be used in various fields of research and/or businesses. Further information on this new technology will be provided in the pages to come.

In conclusion, the system is not built behind the idea of taking over the agricultural community, but rather it is a tool in aiding the gathering of accurate data, automating certain day-to-day routines, minimizing work and maximizing profit.

In this respect, the system is designed as a way out from everyday rules-of-thumb which can hurt even the most experienced farmer.

Note: *The authors will speak of motes, sensor nodes and wireless sensor networks arbitrarily throughout the rest of this dissertation. They are pretty much the same thing!*

CONTENTS

LIST OF FIGURES

LIST OF TABLES

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