

HIGHER TECHNICAL INSTITUTE

**ELECTRICAL ENGINEERING
DEPARTMENT**

DIPLOMA PROJECT

**GPRS APPLIED ON
TELEMEDICINE SYSTEMS**

Project number:

E.1351

BY

ILIANA TSALOUFA

CLASS 3E1

JUNE 2004

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HIGHER TECHNICAL INSTITUTE	PROJECT NO 3507
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**GPRS APPLIED
ON
TELEMEDICINE SYSTEMS**

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ILIANA TSALOUFA

Project Report

Submitted to the department

of Electrical Engineering

of Higher Technical Institute

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In partial fulfillment of the requirements

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TECHNICIAN ENGINEER

IN

ELECTRICAL ENGINEERING

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OBJECTIVES

The objectives of this project are:

1. To study the various existing and emerging wireless technologies with main focus on the General Packet Radio Service (GPRS).
2. To investigate the various applications of wireless telemedicine systems worldwide.
3. Preparation of an educational CD, which may be linked to the web page of the Electrical Engineering Department of HTI, regarding the existing and emerging wireless technologies.

SUMMARY

In the beginning of this project there is a brief explanation of telemedicine as a term, what it can be offer and how it can be provided.

In Part 1 are explained the history and the architecture of GSM.

In Part 2 there is an introduction on GPRS following by its architecture, its features and its terminal classes.

In Part 3 the main wireless technologies that now exist.

In Part 4 the wireless telemedicine systems which are used in hospitals.

In Part 5 the wireless telemedicine projects that funded by EU.

In Part 6 the telemedicine in Cyprus and all the telemedicine projects developed in Cyprus. Also the Comparison of POP3 and FTP protocol over GSM and GPRS. Finally the conclusion and thoughts about this project and how GPRS applied on telemedicine systems.

INTRODUCTION TO TELEMEDICINE

Telemedicine can be defined as the delivery of health care and sharing of medical knowledge over a distance using telecommunication means. It aims to the provision of expert based medical care to any place that health care is needed. Telemedicine as a concept was introduced about 30 years ago where telephone and fax machines were the first telecommunication means used. In recent years, several telemedicine applications have been successfully implemented over wired communication technologies like POTS, and ISDN.

However, nowadays, modern wireless telecommunication means like the GSM and GPRS and the forthcoming UMTS mobile telephony standards, as well as satellite communications, allow the operation of wireless telemedicine systems freeing the medical personnel and / or the subject monitored bounded to fixed locations .The objective of this paper is to present a short review of wireless health systems.

Telemedicine applications, including those based on wireless technologies span the areas of emergency health care, telecardiology, teleradiology, telepathology, teledermatology, teleophthalmology, teleoncology, and telepsychiatry. In addition, health telematics applications enabling the availability of prompt and expert medical care have been exploited for the provision of health care services at understaffed areas like rural health centers, ambulance vehicles, ships, trains, airplanes, and patient home monitoring.

Through this study we try to give an overview of wireless telemedicine systems documented through published conference or journal papers, as well as through completed and ongoing EU funded projects.