GSM BASED REMOTE MONITORING

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Degree of
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by
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Abstract

Critical nature of certain processes has made 24 hour daily monitoring and remote signaling an essential requirement despite the practical difficulty in fulfilling it. On the other hand the advancement of technology has opened new ways to communicate between man and machine by generating Human Readable text instead of Indicator bulbs and Audible alarms which are also stationary.

Since SMS utilizes the unused component of the GSM voice bandwidth almost every GSM mobile service provider lets subscribers send and receive SMS for a nominal fee. Thus, SMS opens a new media for cost effective communication, across the globe to a fraction of the cost usually incurred in making a Voice call.

The aim of this project is to provide Proof of Concept to an effective way to communicate the occurrence of an event to a geographically remote location in a cost effective manner. The functionality is explained by simulating the Input of a Burglar Alarm which causes a Status change of the monitoring system, which in-turn triggers sending of an SMS to a predefined number describing the condition.

DECLARATION

"I certify that this thesis does not incorporate, without acknowledge, any material previously submitted for a degree or diploma in any university or higher educational institution in Sri Lanka or abroad and to the best of my knowledge and belief it does not contain any material previously published or written by another person except where due reference is made in the text".

.....

J K Kanthi

Date:

I endorse the declaration by the candidate.

UOM Verified Signature

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Dr. J P Karunadasa

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ACKNOWLEDGEMENT

This report is a result of my Master of Engineering thesis which fulfils the Project Work of the Second Year program at the Department of Electrical Engineering, University of Moratuwa Sri Lanka. The complete project consists of a Theoretical Part and a Practical implementation of the proposed system which describes the applicability of the solution in a simulated environment.

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GLOSSARY

- API - Applications Programming Interface
- AuC - Authentication Centre
- Bps - Bits per second
- BSC - Base Station Controller
- BTS - Base Transceiver Station
- C MOS - Complementary Metal Oxide Semi Conductor
- EEPROM - Electrically Erasable Read Only Memory
- EIR - Equipment Identity Register
- ETSI - European Technical Standards Institute established by the European Commission.
- GSM - Global System for Mobile Communications
- GUI - Graphical User Interface
- HLR - Home Location Register
- IMEI - International Mobile Equipment Identity
- IMEI - International Mobile Equipment Identity
- ISDN - Integrated Services Digital Network
- Kbps - Kilo bits per second
- ME - Mobile Equipment
- ME - Million Instructions per second
- MMS - Multimedia Messaging Service
- MS - Mobile Station
- MSC - Mobile services Switching Center
- POTS - Plain Old Telephone System
- PC - Personal Computer
- PDU - Protocol Description Unit
- PLC - Programmable Logic Controller
- PSTN - Public Switched Telephone Network
- RISC - Reduced Instruction Set Computers
- RTC - Real Time Clock
- Rx - Receiver
- SRAM - Static Random Access Memory
- SIM - Subscriber Identity Module
- SMS - Short Message Service
- TTL - Transistor-Transistor Logic
- Tx - Transmitter
- µC - Micro Controller
- UART - Universal Asynchronous Receiver Transmitter
- USART - Universal Synchronous Asynchronous Receiver Transmitter
- VLR - Visitor Location Register