



Long Lasting Memories
Mind and body fitness for life

LLM

Technical Operations Training

Pilot Programme

GSI Ltd., UK






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Training Program Overview

- Part One: Introduction to LLM
System Overview, Features, Components
- Part Two: LLM Technical Operations
Architecture, System Requirements, Installation
- Part Three: Using the LLM System
Account Management, Use Case Scenario, Quality Control, Administration, Post-Pilot

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PART ONE

Introduction to LLM

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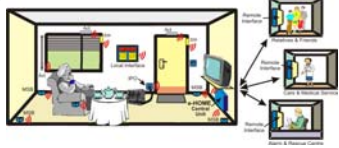
System Overview

- Strategic Objective
- 3 LLM Versions
 - At home – home environments (Austria only)
 - Day care facility - centre medium scale
 - Formal care facility - centre large scale
- 3 Interoperable Components
 - Independent Living Component (ILC)
 - Cognitive Training Component (CTC)
 - Physical Training Component (PTC)
- 1 Central Database Server (in Greece)


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 **Independent Living Component**

- Provided by the eHome system
- Comprised of a network of distributed wirelessly operating **sensors** connected to the e-Home central unit
- Monitors daily activity and responds by initiating alarms where emergency cases are identified




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 **Cognitive Training Component**


- Provided by BrainFitness software
 - Runs on a personal computer
 - Localized for each country
- Offers 6 types of cognitive exercises to improve cognitive capacity or mental health
- Customized for LLM as follows:
 - Presentation Layer: Local User Interface of eHome (touch screen)
 - Central Management System (CMS): Regular low-cost personal computer close to the minimal running requirements of BrainFitness
 - Delivery: Wiring with the rest of the system


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 **Physical Training Component**

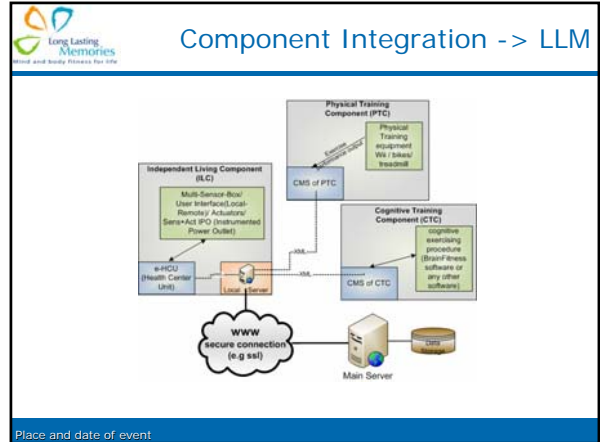
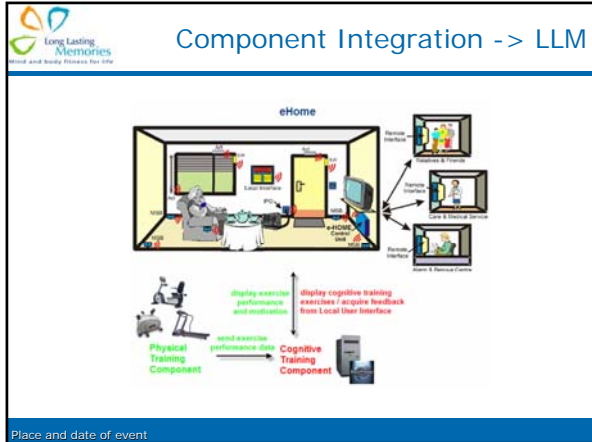
- Customized training equipment used as an input device to the system
 - provides signals corresponding to the performance of the user on the exercise device
- Transmits exercise performance output to the Central Management System (CMS) of the CTC
 - the CTC then digitalizes the signal and processes its values
- eHOME monitors the moves of the users and identifying potential problems

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 **Component Integration -> LLM**



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- ## LLM System Features
- Utilizes state-of-the-art hardware and software technology, comprised of:
 - User interfaces
 - Sensors
 - Facility to connect instrumented power outlets
 - Facility to connect actuators
 - Processing units
 - Cognitive training software
 - Physical training equipment
 - Client/server architecture
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PART TWO

LLM Technical Operations

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Client/Server Architecture

The diagram illustrates a client-server architecture. A central server, labeled 'Server' in red, is located in the eastern part of Europe. Multiple clients, labeled 'Client' in blue, are distributed across the map of Europe. Arrows point from each client to the central server, indicating communication flow.

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LLM Central Server

- For the pilot study, the LLM server will be hosted in Greece.
- Hosts the LLM database.
- The LLM user interface will run on the LLM server (accessible via a 'LLM web site' URL).
- Runs LLM web services so the clients can communicate with the server over the Internet.

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LLM Web Service (LLMWS)

- Allows the LLM clients to communicate with the LLM server over the Internet.
- Responsible for management of clients' levels of authorisation.
- Responsible for providing methods and functions to support the 3 independent components' functions.
- Responsible for the authentication of the LLM users according to their role.

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LLM Clients

- Every client runs four subcomponents:
 - Independent Living Component (ILC)
 - Cognitive Training Component (CTC)
 - Physical Training Component (PTC)
 - Central Management System (CMS)
- All subcomponents accessible via a touchscreen.

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Central Management System

- PC-based application, running under MS Windows XP.
- Offers the LLM-service end-user interface to the CTC, PTC and ILC via a touchscreen.
- Processes all cognitive and physical input data in three ways:
 - By storing it into its local database for future use.
 - By correlating it to existing values from the database to reach conclusions about the performance and effectiveness of the exercise, creating responses like "Very good", "Not so intense", "Try a little harder".
 - By forwarding the digitalized input as well as all processing resulting information to the eHome environment for display.

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System Requirements

- Client Requirements
 - PC with touch screen, mouse, keyboard
 - Wii remote controller (optional)
 - Simple voice recognition (optional)
 - RAM? Disk space? Networking req's? Windows?
- Server Requirements
 - For pilot, 1 central server is set up in Greece
 - Windows Server 2003, .NET Framework, MySQL, web services...
 - SSL encryption capability

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PART THREE

Using LLM

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Account Management

- Creating User Accounts
 - End user
 - Expert user
 - Technical administrator
 - Administrator

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Use Case Scenario

- Senior logs into the LLM system.
- Senior performs a training session – physical or cognitive.
- An alarm is set off – either by the Senior's action (e.g., falling) or by the LLM system.
- A therapist checks on the Senior physically or via the LLM software.
- The LLM system generates reports on Senior's progress.

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Physical Training

- Duration: 1 hour/day, 3 times/week
- 4 types of physical exercise
 - Endurance, strength, balance, flexibility
- 3 parts of physical training
 - Warm up (20-25 mins)
 - Main routine (30-35 mins)
 - Recovering (5-10 mins)

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