A VIDEOCONFERENCING TOOL ACTING AS A HOME-BASED HEALTHCARE MONITORING ROBOT FOR ELDERLY PATIENTS

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Venue: Four Points By Sheraton Sydney: Australia
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Time: 11:30 - 11:45

Introduction and Research Background

- New discoveries based on Alzheimer disease. (Health report of European initiatives on Alzheimer disease, 2010)
- France and UK the figures currently stand at around 60%. Germany 82%, Italy 80% of aging patients live at home.
- In many European countries caring for elderly patients is a government and public health priority, and the new approach is to care for people in their own homes whenever possible.
- Patients are leaving hospital more rapidly because of medical expenses and they will need some additional care at their home premises while they recover.

RELATED WORK

- Responding to the above problems, ESIEE-Paris team operates & maintains Telemedicine Platform, thus a videoconferencing tool is acting as a main solution.
- A VoIP solution with 2 main components i.e. Central Server & Local Equipment for Domestic Internet Gateway (DIG).
- Main aim is to integrate & advance the communication process.
- Various challenges: managing communication between a distant operator and the robot-companion, graphical user interface of Ekiga is complex for old patients.
- The necessity of a remote control & a robot operator to control the robot-companion.
Platform overview (Asterisk and SIP Clients)

SIP Proxy Operation.

Security Approach

- Security in the possibilities of encryption, thus a VPN or stream encryption (HTTPS on the application level) and closed group of subscribers for confidentiality.

- No data duplication, the system has the ability to centralize all data for study purpose.
**Graphical User Interface**

Who is it for? Why?

**SCENARIO 2:**
Accident – An old lady living alone in her apartment accidentally fall and requires some help.

**SOLUTION:**
Robot (Automatic): Calls the ambulance
Robot (Remote): Specialist

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**Development Tools and Resources**

- Ubuntu (Linux OS), Debian Machine and Windows XP (cross compilations)
- Asterisk documentation, RTSP and SIP documentation [https://wiki.asterisk.org/wiki/display/AST/Home](https://wiki.asterisk.org/wiki/display/AST/Home)
- Glade Interface Designer, Text editor & Compiler.
- Programming Languages: C & C++, HTML markup language.

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**Experimental Network Topology**

**Graphical User Interface**

Understanding “User Friendly”

Automatic  Manual
Preliminary GUI Modification Assessment

Proposed Remote Control (Using Glade tool)

Ekiga softphone connected to marmont.esiee.fr

DeStar/Asterisk PBX System
• VoIP nowadays enjoys the fruits of labors during the past few years and it can be considered a mature technology.

• In particular, the deregulation of Videoconferencing will lead to many new opportunities, thus improving communication and cost savings for elderly patients.

• Time vs Technology: this result on new VoIP integration tools, certain services & applications that are carried out daily by researchers.

• Security is still an issue in this technology.

• QoS consideration and Bandwidth Availability.

• For more info, please visit: http://www.ekiga.org/ and http://www.asterisk.org/
**Project Information**

- **Project Name**
  Integrated Cognitive Assistive & Domotic Companion Robotic Systems for Ability & Security
- **Project Acronym**
  CompanionAble
- **Strategic Objective**
  ICT 2007.7.1 ICT and Ageing
- **EU Funding**
  € 7,800,000.00
- **Project Start Date**
  1st January 2008
- **Project Duration**
  72 months
- **Project Coordinator**
  The University of Reading, UK, Prof. Atta Badii
  You can visit: [www.companionable.net](http://www.companionable.net)

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**ANY QUESTIONS...?**

!!!!!! Thank You !!!!