Fraunhofer FOKUS

ELAN
Electronic Government
and Applications

ALADDIN

Home Care System for
Efficient Monitoring of
People with Dementia

At a Glance

The ALADDIN-platform is developed to support dementia patients and carers in the everyday management of the disease at home. It is based on methodologies for efficient patient follow-up, adaptive care and early detection of symptoms to predict decline. It integrates cognitive stimulation tools for patients, decision support and management tools for clinicians.

It is an open, secure, interoperable, integrated IT-solution designed according to Service Oriented Architecture principles. The benefits are expected to lie in the prevention of emergencies, in reduction of carer burden through monitoring functions and in the maintenance of the patient's and the carer's Quality of life.
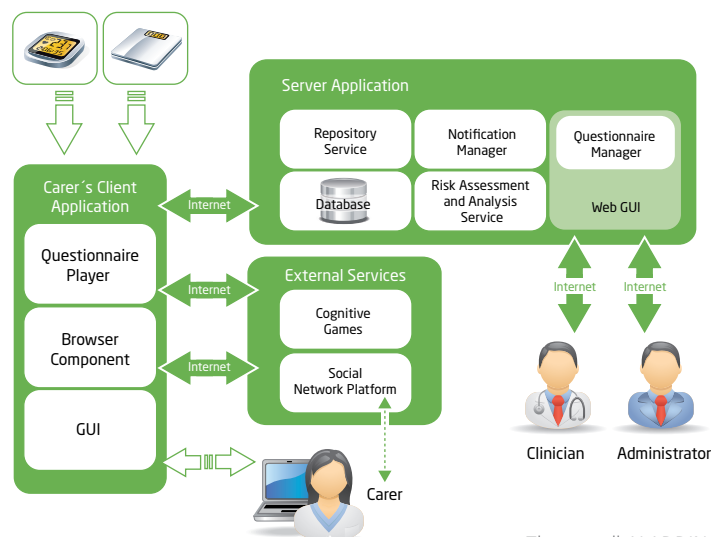
About ALADDIN

ALADDIN integrates state-of-the-art in ICT to an integrated solution for the management of dementia. The technology is supposed to support both the patients and their informal carers.
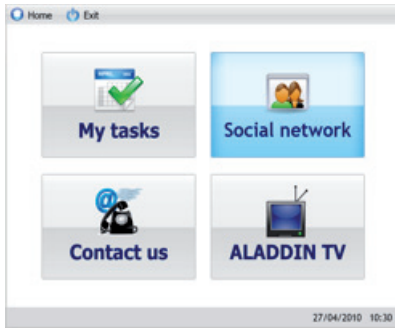
The interdisciplinary solution achieved between information scientists and clinitians can be conceived as an integrated platform enabling distant monitoring of patient status and facilitating personalized intervention and adaptive care. The ALADDIN platform is: (1) Supporting maintaining health and functional capability, through the risk assessment and the early detection of decline symptoms of the patients as well as distress signs of their carers, (2) Providing the means for the self-care and the self-management of chronic conditions, through the integration of social networking as well as educational tools, (3) Providing added value to the individual, leveraging his/her quality of life, and supporting the moral and mental upgrade of both patients and carers and, (4) Enhancing the home-as-care environment through the provision of user-friendly ICT tools for frequent, unobtrusive monitoring.

The ALADDIN-Platform consists of three parts:
- the Carer´s Client Application
- the Server Application
- the External Services

The overall ALADDIN system architecture

The Start Page of the Carer's Client Application which gives access to the to the various system services

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ALADDIN – Carer's Client Application

The Carer's Client Application is used at home by carers and patients to access the services of the ALADDIN platform. Carers fill in the ALADDIN questionnaires for neuropsychological assessment from home. Physiological parameters are recorded and submitted by the carer using the application. Patient records generated through the use of the system include:

- Physiological parameters (blood pressure, body weight, activity level)
- Cognitive, behavioral & daily living assessment (neuropsychological tests)
- Medication follow-up and drug-related adverse events

Carers are also closely monitored, by filling in regularly the questionnaire about the carer's well-being, allowing the assessment of their own physical and psychological burden. The submitted data is analyzed automatically by the Risk Detection and Prediction component and warnings which are generated when an alarming condition is identified. Manual warnings can also be sent. External services, are accessed from the Carer's Client Application through an embedded web browser.

The Start Page of the Carer's Client Application gives access to:

My Tasks, leading to the list of tasks assigned by the clinician to the carer or patient for the current day,

Contact us, enabling the carer to send a warning message to the clinician requesting him/her to contact the caregiver in the near future,

Social network, opening into an embedded web browser one of the two separate bulletin boards (forums), one targeting the carers and one targeting the patients,

ALADDIN TV, containing educational material for the carers.

ALADDIN – Server Application

The Server Application is the core of the platform. It implements the basic functionalities of the platform, provides secure communication with client applications, stores the information about patients and carers, provides the possibility to exchange information with external Hospital Information Systems (HIS) and provides a web based graphical user interface for clinicians and platform administrators to interact with the system.

ALADDIN – External Services

The External Services are services provided by external web portals. There are two types of services involved: cognitive games and a social networks. The integration of these services in the platform is achieved by a web browser component in the Carer's Client Application, which opens a web page with the selected external service directly in the client application. The Social Network Service is provided by the ALADDIN platform as a web forum integrated with the core platform management of users. The provided forum can be easily replaced by any alternative social network platform.

GOALS

The ALADDIN system aims to provide the technological means as well as a novel and credible methodology for:

- Efficient patient follow-up
- Early detection of symptoms that predict decline
- Adaptive care / personalized intervention
- Networking / socialization / education / cognitive stimulation
- Prevention and relief of distress for the carer
- Decision support and disease management tools for clinicians

The main benefits of the platform are expected to lie in the prevention of emergencies that are caused by worsening in symptomatology, cognitive decline, behavioral aspects, overall severity and drug side effects. ALADDINs strengths are its interdisciplinary approach implementing scientifically accepted medical scales. Furthermore it respects interoperable designs goals. The systems long termed monitoring includes not only the patient and the clinitians in the operational scenario, but also the carer. This attributes makes it unique on the market. It is independent of both physical measurement type and questionnaire type, so the technologie can be reconfigured and deployed in different context of diseases and is not specifically determined to be used only in the dementia context.