Virtual Coaching Activities for Rehabilitation in Elderly

Call: H2020-SC1-2016-2017

Grant Agreement Number: 769807

D5.2 Coaching services interface definition Extended summary

> *vCare* project starts from the assumption that the rehabilitation is an ideal setting for the adoption of a Virtual Coach as rehabilitation can soften the transition for a patient from the clinic to home, where often there is a weakening of the continuity of care concept.
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> This document provides an overview of the services which will be provided to the patients via an avatar enabled interface. The services aim to support the rehabilitation pathway and well-being.

BACKGROUND

Supporting and coaching service provided by the vCare project aims at supporting the patient's health and well-being at home while keeping the engagement for a healthy life style high. The services are designed in a way that the usage is easy and the user experience is high while the health literacy and engagement is tackled in a subtle way. The services very defined based on the requirements derived from the rehabilitation pathways for 4 health issues: stroke, heart attack, heart failure and Parkinson's disease.

SUPPORTING SERVICES

Supporting services aim at supporting the daily life and increasing the pleasure using vCare. For the project runtime, the following supporting services will be realized:

Name	Description
Standby	The service enables the user to put the system in standby mode by voice input and/or button click (touch). In standby, the voice detection is switched off as well as there is no speech output provided by the system. In this mode, notifications are shown only on the display in a non-obtrusive way indicating that there are notifications to be shown
Weather	The User can ask the system for the weather forecast of the current day and/or the next day. The user can ask the system for the weather at a specific location. If no location is given, the current location as defined in the user profile is used
News	The user can ask the avatar for the news and the top headlines are provided. The news depend on the country and language and will be retrieved from a third-party service newsapi.org
Joke	The user may ask the avatar to tell a joke. It is shown in the literature that making the avatar funny increases the acceptance and the perception of empathy. Therefore, jokes to together with the expression of emotions might support user acceptance and user experience.

COACHING SERVICES

Coaching services are directly related to the rehabilitation pathways and will be justified by health professionals. In vCare, the following coaching services will be implemented and provided to the patients, whereby the list of services could vary in dependence of the actual pathway.

Name	Description
User feeling	This service aims to retrieve the user feeling by asking the user. The user's response will be classified and stored in the common database. This service is system triggered, that means the system initiates the interaction
Agenda	The agenda service will inform the patient about his daily schedule according to the rehabilitation plan. The rehabilitation plan can be configured via the caregiver user interface and is part of the KIOLA eHealth platform, developed and provided by AIT.
Physical therapy	Via an externa application running on a device connected to the user's TV, a set of serious games for performing physical exercises is shown to the user. The serious games are triggered either by the user or by the avatar via a reminder. The physical exercise is then invoked automatically. A specific game plan will be available after configuration on the doctor station or through API from the vCare professional therapy planner.
Health status	The user will be informed about his/her current health status and progress in the individual rehabilitation pathway. Aggregated health data are presented to the user in form of numbers, graphs and speech output. In addition, deviations from the normal values are also shown. The deviations are determined in an underlying service within the reasoning layer.
Cognitive therapy	The user is able to play cognitive games, initiated by communication with the avatar. Cognitive games are third-party apps provided by IMG and are part of the REHABILITY software. The games itself are not integrated into the UI controller, but will be presented in a separate app. The games selection, levels, etc. are configured by a care professional.
Reminders and notifications	This service provides a mechanism to notify the user about outstanding tasks or relevant information. Notifications can be triggered by any service or module within the vCare ecosystem via MQTT. The reminder and notification service ensure that the user retrieves the information and the user is able to postpone it. Context information is used for efficient triggering. This will be also used to show deviations on vital parameters.
E-learning	To increase the patient's health literacy, e-learning components related to a healthy lifestyle and the user's rehabilitation pathway will be provided to the user. The content will be provided by the avatar in subtle way. e.g. in form of daily tips.
Emotion expression	To make the avatar and its interaction more affective, it will be enriched with emotion expression. This will be performed by facial expression and intonation as well as gestures. The decision which emotion will be expressed depends on the context and will be twofold: the text to be spoken by the avatar is analysed by using an IBM Watson API and this information is merged with a static context information.