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Report

ReMIND



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Robot prototype 1

The type of robot used is called James



Language support

In the first prototype the robot is fully supporting the following languages: German, English, Spanish, French, Dutch, Romanian, Chinese, Arabic and Portuguese.

Main Features

The robot is controlled by the ZBOS Control© application, which has to be installed on an external device (e.g. smartphone or tablet). This application enables the user to create personalized kiosks, maps, compositions and so on. The different features provided by the application will be explained below, as well as the specific content created for this study by the project partners.

FEATURES PROVIDED BY ZBOS CONTROL

Composer

In the composer people can create compositions. A composition exists of a certain pattern of actions and events that the robot has to go through. These compositions can be started from the ZBOS Control app, the robot itself or can be planned in the scheduler to launch at a specific time point (see next feature). There's two types of composers, a simple composer and an advanced composer. The simple composer will go through a linear path of actions, the advanced composer isn't linear and will use certain variables and statements to determine which actions to do next.

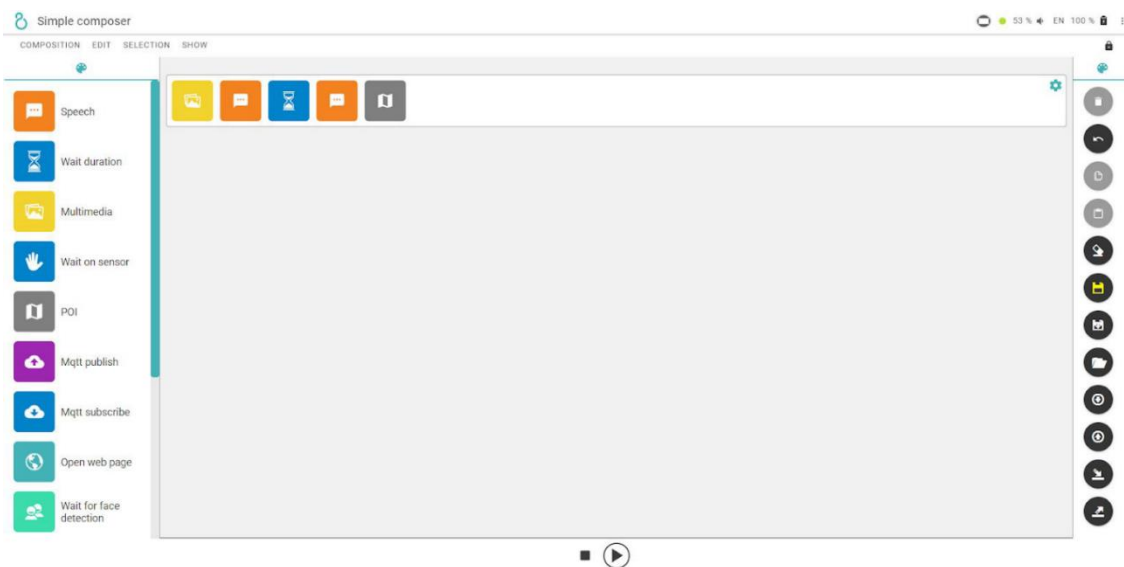


Figure 1: Simple composer

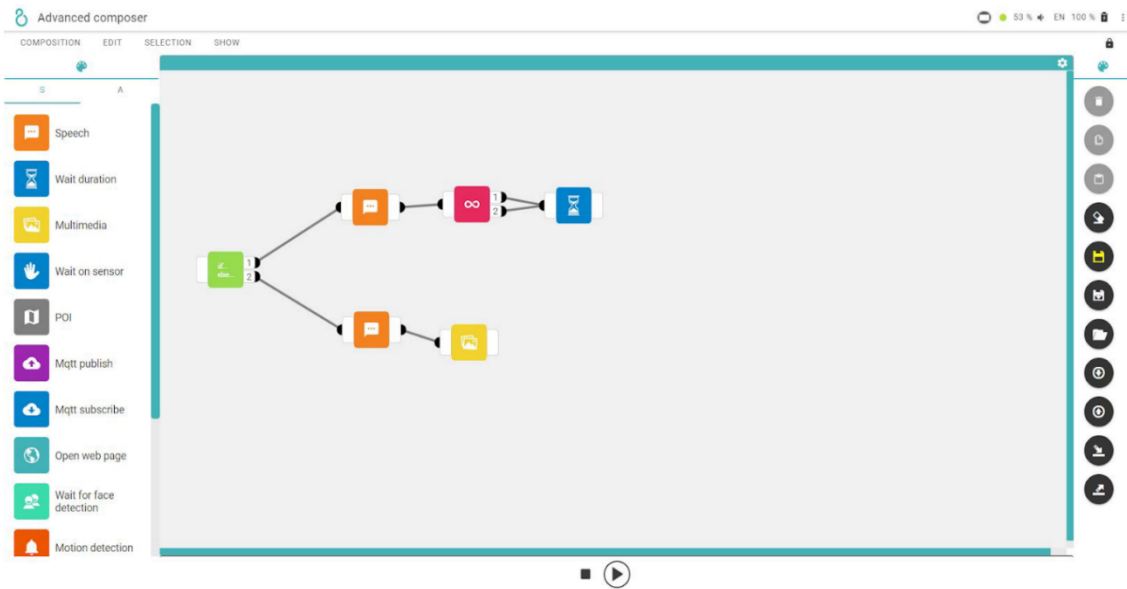


Figure 2: Advanced composer

Scheduler

The scheduler is an agenda in which certain events can be planned by the (in)formal caregivers or family of the older adults, such as medication reminders, doctor appointments, family events,... It is also possible to upload a specific composition in the agenda, allowing the robot to start acting automatically at a specific time point moving to a specific POI (see 'localisation and mapping'). For example, a composition can be created instructing the robot to go the chair in the living room (*POI*), saying: "it's time to take your medication" (*text block*). Next, a picture can be shown of the content of the person's pill organizer to make sure he takes the right medication (*multimedia*). This composition will then start automatically after being scheduled at a specific time point.

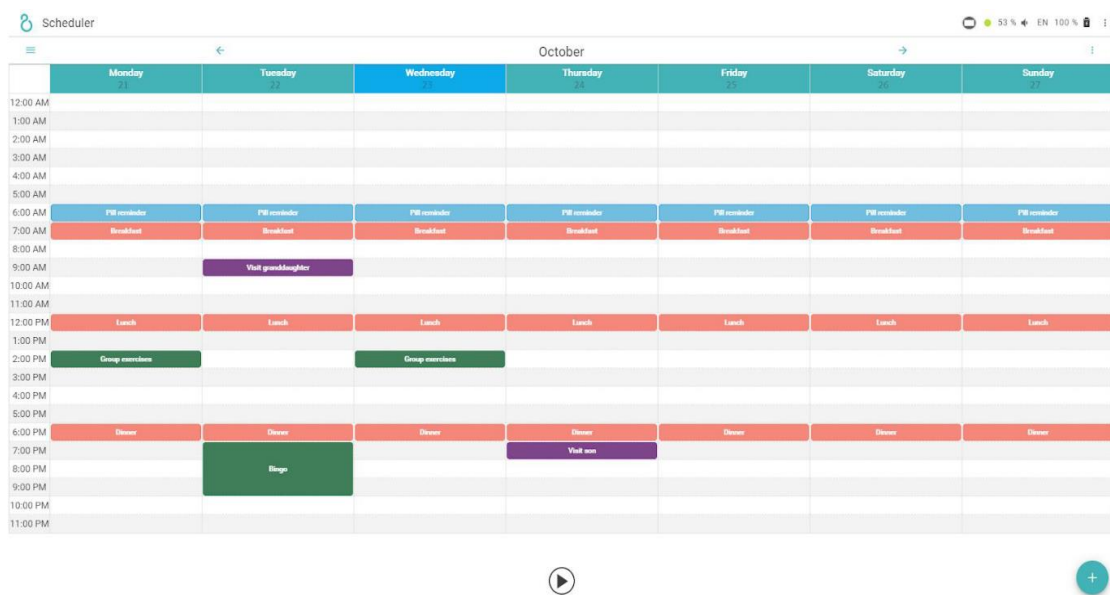


Figure 3: Scheduler

Media player

The robot can function as a media player. Media can be uploaded to the robot through the ZBOS application or through a USB port on the robot. Media files can be started from either the caregiver app or the robot itself. These files can also be used in a variety of ways, e.g. inside compositions, the scheduler,...

Internet browsing

The robot has a browser installed which makes it a good tool for internet browsing. Websites can be started from inside compositions or can be navigated to from inside the browser app.

Localisation and Mapping

The robot can be driven around using a joystick in the ZBOS app. While the robot drives around it can make a map of its environment and points of interest can be added to the map. These points of interest can later be used to let the robot move to them independently. Points of interest can be “next to the seat” or “the kitchen”. A command can be given by voice or inside the caregiver app. The robot will automatically avoid obstacles on its way while trying to reach its destination (=point of interest). If it's forbidden for the robot to enter certain locations, the users can draw virtual walls on the map which the robot will know not to cross.

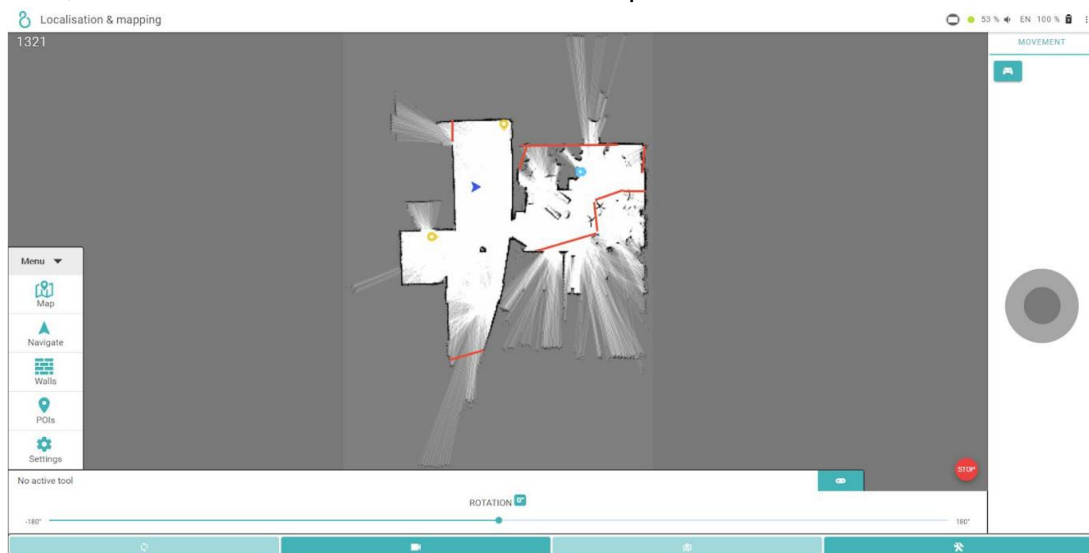


Figure 4: localization and mapping

Kiosk editor

The Kiosk editor makes it possible to personalize the kiosk layout to match the users need. This way every participant can have a personalised kiosk to their preferences without it being cluttered with apps and buttons that they won't use.

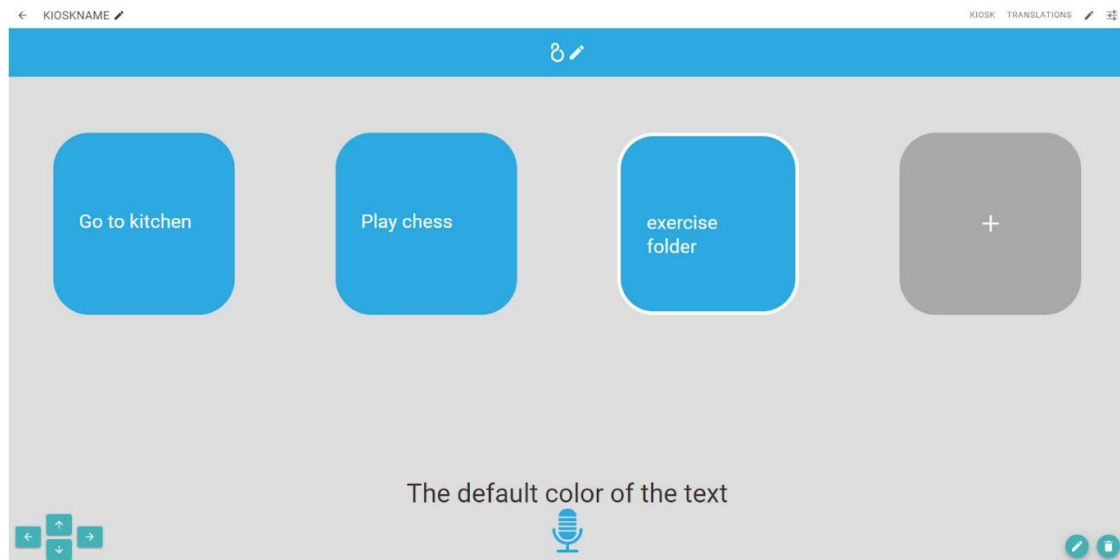


Figure 5: kiosk editor

External app support

It's possible to install external apps on the robot via the app store. Thus, if the robot doesn't support some features by default, you can search for existing apps to fill the need, e.g. specific games that are requested by the participants.

CONTENT PROVIDED BY PROJECT PARTNERS

Different scenarios were developed by all project partners that will be used in the sessions with the participants. Scenarios include for example individual games, interactive games, weather forecast, compositions for reminders and physical exercises. Existing scenarios can be adapted and new ones can be created at any time. See D2.1 for a full overview of the created scenarios.

Physical exercises

For this study, UGent created 43 exercise videos, divided into 4 categories: (1) strength, (2) core-stability, (3) balance and (4) seated exercises. All categories have different levels of difficulty (easy, medium, hard), enabling the person to perform exercises according to his physical abilities. The videos are available via the kiosk on the robot and were translated to German and Romanian also.

The exercises can be used individually as well as in group activities. Different compositions were made in which all videos from a specific category and level are played in row, containing rest breaks and motivational speeches from the robot.



Figure 6: physical exercises

Games

In addition to the cognitive games already available on the robot in the form of applications (e.g. memory, chess, 4 in a row,...), different game scenarios were created by the test sites with the composer. Games were developed for both individual settings and group settings. Examples of games are: “proverbs quiz” (quiz), “packing my suitcase” (interactive game), “movement according to colours” (concentration game), “falls prevention quiz” (quiz),...

Other content

Other, context-based, scenarios were also developed, targeting orientation of the older adults (e.g. reminders on medication or lunch, latest news), entertainment (e.g. playing videos on YouTube, watch TV) and so on.

Keosity

Ovos Media developed an application, called “Keosity”, that will be used and tested with the participants in this study. The application asks the person questions about their past (such as favourite music, favourite meal, specific childhood events) and allows them to display their life story in a “timeline”. There is also the possibility to add photos and audio clips related to certain life events. The app stimulates the memory and aims to evoke positive moods and emotions with its users. The timeline and related stories can be shared with others, facilitating social contact by supporting communication. It is now available in 4 languages; Dutch, German, English and Romanian.

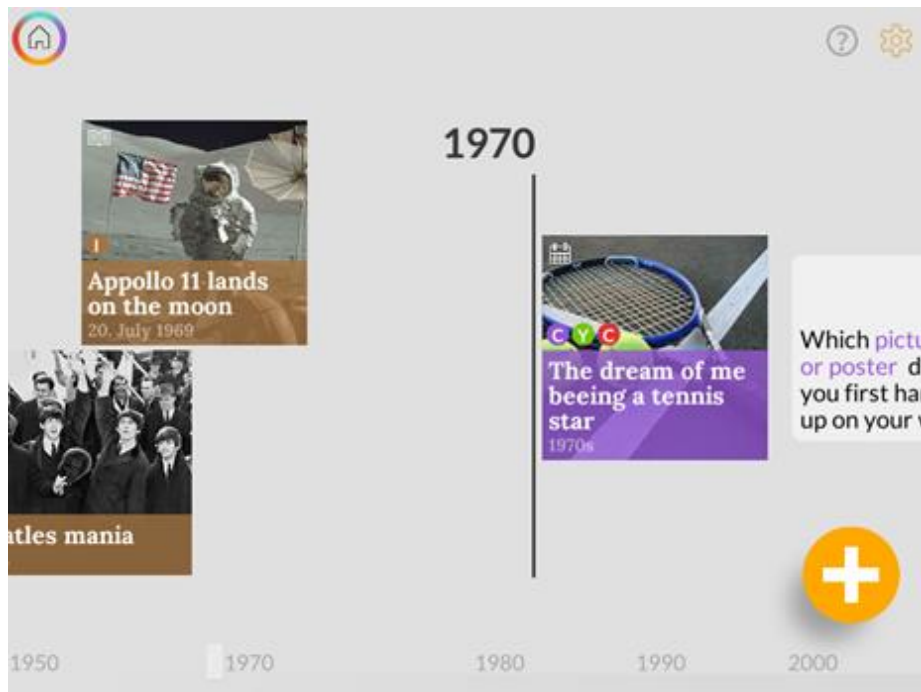


Figure 6: kiosk editor