***Mobile application intended for training and therapy of cognitive function disorders***

# Keywords (completed by CPPT)

# Technology keywords

Therapy, cognitive, disorder

#  Market keywords

Application, training, therapy

#  NACE keywords

Q. 86.9    Other human health activities

# Summary

The mobile application is aimed at testing and subsequent enhancing of the functions of an innovative solution system for training cognitive functions useful mainly in the therapy of patients after brain damage and seniors with memory, attention and orientation disorders.

Based on the experience from therapeutic practice, a mobile application is being developed intended for training cognitive functions at home. The application is aimed at training skills useful in everyday life. The design of the application emphasizes a user friendly interface and motivating therapeutic tasks while keeping the principles of a correctly carried out therapeutic intervention, diagnostics options and easy optimization of the difficulty of tasks assigned by the therapist based on the patient’s achieved results. To enhance the variability of tasks, it is possible to extend the system by additional peripherals detecting movement and selected physiological functions of the patient. The application setting can be adjusted to suit the therapy as well as prevention of cognitive function disorders with various age groups

# Description

The „Cognitive Application“ contains two game scenes for attention and memory training.

The first sequence is oriented towards training attention. After pressing "Start" light bulbs will start to flash. Your task is to select and press the bulbs that light up in blue, yellow, red or green, as quickly as possible. Each time the task starts it is randomly determined which two colours are intended to be pressed and which should not be touched. Information as to which colours are “good” or “bad” will be displayed at the bottom of the screen. If a bulb of a “good” colour lights up, the task is to press the bulb as soon as possible. If the bulb is pressed in time one positive point is earned. If a bulb of a “bad” colour lights up, and the user presses it, one point is deducted. The goal is to get as many points as possible with the shortest possible response time. The task ends when the number of points is zero, or after 2 minutes.
The second sequence is focused on memory training. After pressing "Start" numbers will appear on the light bulbs. The task is to remember on which bulbs the numbers appeared and then press them. If the choice is correct, the sequence of marked bulbs will gradually be extended. If the choice is wrong one point will be deducted and the task is repeated. The sequence ends after the third wrong answer. The aim is to memorize as many as possible of the consecutive marked bulbs.

The application "Relaxation" have been created so that every user can use them independently in the home environment for the purposes of relaxation, relief of tension and reduction of prolonged stress in everyday life.

​A simple relaxation exercises are designed so that patients having cognitive or motor deficits could do them during their rehabilitation process.

The musical accompaniment, which was recorded specifically for each task in the course of the authentic music therapy sessions, helps to induce a state of relaxation.

*New features:*

* User friendly mobile application
* Home based training of cognitive functions

# Advantages

* The training difficulty may be set according to user´s abilities.
* All elements in the application are clearly visible and easy to use.
* At the end of the training, a result is displayed which enables to monitor current and long-term success rate when performing tasks.

# Developmental stage

[ ] Already on the market [ ] Project already started

[x] Available for demonstration [ ] Project in negotiations- urgent

[ ] Concept stage [ ] Proposal under development

[ ] Field tested/ evaluated [ ] Proposal under development

[ ] Under development/ lab tested

Prototype available for demonstration available at research team lab.

# IPR status

 [ ] Granted patent or patent application essential [ ] Trade Marks

[ ] Patent(s) applied for but not yet granted [ ] Copyright

[ ] Patents granted [ ] Design Rights

[ ] Secret Know-How [ ] Exclusive Rights

[x] Other (registered design, plant variety, etc.)

# Partner sought

We are interested in either out-licensing or co-development agreements.

# Type of partnership considered

 [ ] Manufacturing agreement [ ] Financial agreement

[x] Research cooperation agreement [ ] Join venture agreement

[ ] Services agreement [x] Licence agreement

[ ] Technical cooperation agreement

[ ] Commercial agreement with technical assistance

# Research team

 <http://ubi.lf1.cuni.cz/oddeleni-vypocetni-techniky-a-informatiky-kontakty>

<http://cet.lf1.cuni.cz/>

# Team capacity in relation to the project

Team specialists are available for consultation

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