Attachment

Lifestyle Reactivation Project:

Jockey Club Smart Homecare Solution

Brain Training System

Tender Specification

(Tender Reference: ELCHK-BTS/T201807)

1. Background

Lifestyle Reactivation Project: Jockey Club Smart Homecare Solution

In response to the tremendous increase of the ageing population, Evangelical Lutheran Church Social Service - Hong Kong (ELCSS-HK) applied the Chief Executive's Community Project List 2017 and successfully got the grant to develop "Lifestyle Reactivation Project - Jockey Club Smart Homecare Solution". The purpose of the project is to make the good use of technologies and IoT (Internet of Things) devices plus the inputs from healthcare professionals, re-engineer the lifestyle of frail elders and empower their caregivers, assist them to continue living at their familiar home environment and community as long as possible. Establish a new homecare service model for frail elders at ELCSS-HK and also deploy such service model to other NGOs in the future.

The Lifestyle Reactivation System is under development and is the core of the smart homecare solution which provides a "LR Mobile App" for frail elders to enhance their daily engagement at home, as well as to facilitate communications with their families. Each service user will be provided a tablet at home with a dedicated login to the LR Mobile App, internet connections will be arranged either through Wi-Fi network at home or through 4G sim card connection.

Brain Training System

Brain Training System is one of the major components of the Lifestyle Reactivation Project. It provides cognitive training through cultural related and age-appropriate games for the local elders. The training system facilitates the prescription and monitoring of cognitive training programs by Occupational Therapists in order to maintain the brain health of the elders with cognitive deficits.

2. Existing IT Facilities of ELCSS-HK

Most of the service units of ELCSS-HK are equipped with broadband connection with bandwidth of 100Mbps, while the headquarters has a bandwidth of 1000Mbps.Most of the PCs are installed with the operating system of Microsoft Windows 7, Windows 8 and Windows 10. The Evangelical Lutheran Church Social Service - Hong Kong has a plan to adopt VPN for this computer solution.

3. System Overview

The Brain Training System provides an easily accessible, customizable, and culturally-related cognitive training program to the frail elders at home. This system contains at least 30cognitive training games indifferent cognitive domains, e.g. memory, attention, calculation, reaction, problem solving, visual perception, etc. It aims at promoting frail elders' enjoyment when playing cognitive games as well as maintaining their brain functions in the cognitive domains.

4. Major Components of the Brain Training System

The Brain Training System consists of 2 major components:
- 4.1.   Content Management System (CMS);
- 4.2.   Mobile App for elders.

5. Project Deliverables and Schedule

The followings are the expected deliverables with timeline:

- 5.1.   The system should provide total 30 games (i.e. "30-in-1", 1 App container includes 30 games).
- 5.2.   All games (i.e. 30 games) should have stand-alone Apps of Android version for free download. (optional);
- 5.3.   The first 18 games should be completed by June 2019;
- 5.4.   The rest 12 games should be completed by December 2019.

6. Functional Specifications

6.1 Content Management System (CMS)	
6.1.1	General Requirements
6.1.1.1	• The system user interface should support English. • The system should provide interfaces for authorized users to manage the system. • The system should implement in web platform for CMS with industrial-standards.

	• The system should support filtering, searching or sorting functions to query the desired records. • Authorized users should be allowed to create, modify and delete the desired records.
6.1.2	Game Features
6.1.2.1	Game Idea Initiation • ELCHK should provide general game ideas during user requirement collection stage. Based on the general ideas, the game development and implementation will rely on Vendor's Team. • The games should be interesting and attractive.

6.1.2.2	Cognitive Domains
	• The 30 cognitive training games will be categorized into 6 different cognitive domains, for examples:
	   o Memory (記憶力)
	   o Attention (集中力)
	   o Calculation (計算力)
	   o Reaction (反應力)
	   o Problem Solving (判斷力)
	   o Visual Perception (視覺感知力)

6.1.2.3	Leveling
	• Each game should have 5 difficulty levels.
	• The games should be based on the predefined variables and game mechanics to determine the difficulties at different levels.
	• The games should be well designed in terms of different daily scenarios, backgrounds, themes, levels, mission, etc.
	• The system should support random mode of rounds' sequence.
	• The system should have the flexibility to support random mode of each round formation according to the internal variables and game mechanics.
	• The games should have two major design directions:
	
	I/. Random Generation with levels
	   • The system should control the level-up or level-down according to the predefined game mechanics, e.g. the games in "Reaction" domain.
	
	    Example:
	    o The system should provide 5 Plays per Stage. Total 4 Stages (20 Plays) per Round.
	    o Scores should be accumulated after each Stage.
	    o An accumulated score at each Stage should be shown to inform user.
	
	II/. Round Challenge
	   • The system should preset the number of Rounds at each level, e.g. 100 Rounds in Level 1 of a game in "Problem Solving" domain.

	• When user completes all the rounds in a level, the next level should be opened for further playing and so on. • The system should auto-save the user's last playing level for each quit of game.
6.1.2.4	Level Challenge (越級挑戰) • This is applicable to the games of "Random Generation with levels". • The system should allow user to access "Level Challenge" at the homepage of each game. • 2 Plays from Level 1 to Levels 5 would be generated. If user can complete 2 Plays of Level 1 successfully, they would then go to the other 2 Plays from Level 2, and go on. • If the user failed one of the Play of that Level, then the system will define the user can access the previous Level for gaming. • No Score is needed in this "Level Challenge".
6.1.2.5	Round Selection • This is applicable to the games of "Round Challenge". • The system should allow user to access to select the desired round to play. • The system should judge the next continuous round after the user's attempts completed successfully.
6.1.2.6	Scheduled Bonus Period • The system should support the scheduled bonus period, i.e. to invite user to play game(s) in a special period of time. • Bonus Score should be obtained during period.
6.1.2.7	OT Suggestion List (Occupational Therapist Suggestion List) • The system should allow the OT to assign specific games (with specific level) for the user. • Authorized users should be allowed to create, modify and delete the OT Suggestion List.
6.1.2.8	Schedule Training Function • The system should allow authorized users to create and assign Scheduled Training Program (a selection of cognitive games in specific levels of difficulties) for specific user under specific time (timeslot). • The system should support a timetable view (i.e. daily, weekly and monthly). • The system should support creating Training Program Templates, able to repeat the Training Program Templates (i.e. daily, weekly and monthly) with user-friendly interface. • The system should allow drag & drop of the assigned schedule to corresponding timeslot. • Authorized users should be allowed to create, modify and delete the Scheduled Training Program.
6.1.3	User Management(Appendix A - User Management Chart)
6.1.3.1	Basic Requirements: • The system should provide User Management to register and manage user accounts.

	• The User Management should offer the following approaches:
	   ○ The system should allow individual public user to create account.
	   ○ The system should be able to use the latest technology (e.g. RESTful JSON, Open API, etc.) to authenticate using the Lifestyle Reactivation System (LR) user's credential.
	   ○ The system should support federated authentication (e.g. Google sign-in, Facebook login, etc.).
	   ○ The system should be able to allow "Corporate account subscription" for further management of a group of users under a corporate, e.g. hospital patients.
	• Authorized users should be able to create, modify and delete the users.
	• Authorized users should be able to control the users' authorization.
	• Authorized users should be able to assign the users' access rights to individual functions/features/fields of the system according to the users' roles.
	• Guest Login should be provided for limited access of games.

6.1.3.2	Corporate User Management - Ad Hoc User • The system should provide Agency/Team Administrator account for each corporate subscription to manage the corporate users (Sub Admin). • Potential corporates include other NGOs, hospitals, universities, etc. • The system should be able to allow "Corporate account subscription" for further management of a group of users under a corporate, e.g. manage staff (OTs) in a hospital to handle the ad hoc users. • The corporate user account should create a single entry of game for ad hoc user by entering patient's identification in a form of text field. Selected level can be assigned by OTs to each single entry (Ad hoc user)in a period of time. • The system should capture the score and time of the entry to obtain the Ad hoc records.
6.1.3.3	Corporate User Management - Long Term Approach • The system should provide Agency/Team Administrator account for each corporate subscription to manage the corporate users (Sub Admin). • Potential corporates include other NGOs, hospitals, universities, etc. • The system should be able to allow "Corporate account subscription" for further management of a group of general users under a corporate, e.g. manage patients in a hospital. • The corporate users (Sub Admin) should be able to create general user accounts (patient users) following the term and condition subscribed. • The system should provide the same functions for patient users as general users.
6.1.4	Scoring and Ranking Management

6.1.4.1	• The Scoring and Ranking Management should calculate the score based on the following elements for each user:
	   ○ The score gained after the completion of each game (Participation Score).
	   ○ The performance in different games (Level Achievement).
	• The score of each game, Level Achievement in cognitive domains or total

	score (within the Brain Training section) should have ranking list, e.g. "Top 100".
	• The system should provide the "Self-comparison" for each user:
	  ○ Appreciation should be shown for improvement.
	  ○ Encouragement should be shown for regression.
	• The score should never be reset.
	• Authorized users should be allowed to create, modify and delete the score and rank.

6.1.5	Alerts
6.1.5.1	• The system should push an alert to authorized user (OTs) when there is a significant change of levels for each user. • The system should provide push values to the Lifestyle Reactivation System (LR) through API to perform the alert push.
6.1.6	Reporting
6.1.6.1	• The system should provide sophisticated reporting tools to allow users to define report layouts and contents effectively. • OTs should obtain the reports for their professional use. • The reports should include accumulative Participation Score, Level of Achievement in different cognitive domains, usage trend and compliance to training programs, etc. for individual user. • The reports should include, but not limited to, the sorting by days, weeks, months and years. • A single report should support export to MS Excel, MS Word, PDF, text, etc., and output to printer directly.
6.1.7	Audit Trail
6.1.7.1	• The system should be able to log all kinds of transactions initiated by users for auditing purpose, including all insert, update and delete operations. • The system should show all details of the audit trail records, including the status change.
6.1.8	System Integration (Appendix B - System Integration Flow)

6.1.8.1	Integration with Lifestyle Reactivation System (LR)
	• The Brain Training System should be able to associate with the Lifestyle Reactivation System (LR).
	• The user profiles of Brain Training System should be able to map with the user profiles of LR.
	• The LR authentication would follow the Open API Standard:
	  ○ Communication channel - web HTTPS
	  ○ Message data format - RESTful JSON (or equivalent)
	  ○ Authentication - LR proprietary authentication
	  ○ Authorization - OAuth 2.0 (or equivalent)
	• The system should be able to integrate with LR System for the exchange of data, including, but not limited to, game ranking, last level, alert values, participation score, Level Achievement and total score, by the latest technology, such as API.

6.1.9	Stand-alone Apps of Android version for 30 individual games (optional)

6.1.9.1	• The system should provide Stand-alone Apps of Android version for 30 individual games. • The system should have the flexibility to control the access of the Stand-alone Apps under certain plans.
6.2 Mobile App for elders	
6.2.1	General Requirements
6.2.1.1	• The app should support Traditional Chinese interface and English interface (optional). • The app should be compatible with Android and iOS (optional).
6.2.2	User Interface
6.2.2.1	User-friendliness • The app should be easy to navigate by elders. • The app should be simple and with moderate to high contrast in colors for elders. • The app should use readable and appropriate sized fonts. • The app should be applied attractive sound effects to maintain user's attention. • Realistic illustrations should be used in all graphic design of the Brain Training App, for easier identification by elders. No cartoon style is expected. • The app should be designed in consistent illustration style.
6.2.2.2	Favorite Play List • The system should allow the user to select the favorite games as bookmark, to form user's own "Favourite play list". • The system should provide user-friendly button (e.g. a star) for user to select/deselect the favourite games.
6.2.2.3	User Profile • The app should provide the interesting icons for users to define their profile pictures. • The app should allow users to enter their nick names.
6.2.2.4	Dashboard (Home) The dashboard(home) should include, but not limited to, the following components: • OT Suggestion List • Favourite Play List • Level Achievement in different cognitive domains • Links to all 30 brain training games • User Profile- Score& performance • Ranking- Top 100
6.2.2.5	Scheduled Training Program List • The system should provide calendar view to view the Scheduled Training Program List clearly. • The system should push alerts to the user for the scheduled training before the scheduled timeslot.
6.2.3	Tutorials, Instructions and Hints
6.2.3.1	• Each game should provide a tutorial to let the user walkthrough the

	instructions and practice examples before starting each test trial. • The user should choose to skip tutorial. • The tutorial should be built-in and start before each test trial. • The tutorial should be step-by-step instructions with VO. • The app should provide clear instructions for each game before the game start. • The user should select tutorial (i.e. "How to play") whenever necessary. • When user quit the game, the system should be able to save the last playing level. • When user selects "resume game" for each start, the level should resume at the last playing level. • The app should provide hints icon/button (during the game) to facilitate the user to play the game.
6.2.4	Online and Offline Mode
6.2.4.1	Support both online and offline mode • The app should be available to work offline. • Once the connection is resumed to normal, all related information should be able to synchronize into the system automatically.

7. System Requirements

The computer solution proposed by the supplier must comply with the following system requirements:

1. Web-based system is required.

2. Support Android 5 or above /iOS 8 or above Platform

3. User-friendly operating interface is required.

4. User interface should support multi-language. The input data and reports must support Unicode, i.e. English, Traditional Chinese and Simplified Chinese.

5. Support Client Side OS Platform: MS Windows 7 (32-bit and 64-bit), MS Windows 8 (64-bit), MS Windows 10 (64-bit), and latest versions of MS Windows.

6. Support Mac OS Platform: Mac OSX 10.7 or above.

7. Support Client Side Web Browser: Chrome, Safari, IE and Firefox.

8. Capacity:

1. Number of Users: 710
2. Number of Caregivers: 220
3. Number of Active Cases: 710
4. Number of New Cases per Year: ~200
5. Number of Tablets: ~400
6. Number of Closed Cases per Year: ~200
7. Number of Service Teams: 8

9. Hardware

Please refer to the following table for the hardware to be adopted for this project. Please note that the System will be run on a Virtual Private Network (VPN) and virtual machines.

1. Hardware (for Production & Standby):	Quantity
EMC VXRail G Series - 4 Nodes - 10 cores dual sockets of Intel Xeon E5-2630v4 (per node) - Memory 512GB (per node) - Cache Size 800GB SSD (per node) - HDD 1TB x 4 (per node)	1
8-10" Smart Tab 4G	200
8-10" Smart Tab Wifi	200

Suppliers would need to make a fair assessment on such hardware configuration described to ensure that the proposed solution product is compatible and with sufficient capacity. Besides, Suppliers would also need to ensure that such hardware configuration supports proper data backup (even for hot backup) and security control.

Suppliers need to propose a Disaster Recovery (DR) Plan and conduct a DR drill during the implementation period upon the request of Evangelical Lutheran Church Social Service - Hong Kong.

Suppliers should counter-propose the hardware configuration required if they find that there is deficiency in the above-stated hardware and infrastructure configuration.

10. Schedules

10.1. Compliance

(*Please tick the appropriate.)

[ ]   We confirm that our proposal comply fully with the required specifications, described in Sections 1 to 8 of this Document.

[ ]   We confirm that our proposal does not comply fully with the required specifications, described in Sections 1 to 8 of this document, in the following aspects:

10.2. Reporting

(*Please tick the appropriate.)

[ ]   I/We confirm that our proposed solution is equipped with a reporting tool or a business intelligence tool.

[ ]   I/We confirm that our proposed solution is NOT equipped with any reporting tool nor any business intelligence tool.

Please indicate the proposed approach for generating the following required reports:

10.3. Risk Management

Please state your proposed approach for risk management including but not limited to the following aspects:

1.   Transaction Data Backup:

2.   Solution Backup:

3.   Resilience:

4.   Security:

5.   Contingency:

6.   Personal Data Handling:

7.   Other risk factors:

10.4. Data Migration

Please describe your proposed data migration approach and plan.

10.5. Documentation and Deliverables

Please state if the following documentation/deliverables will be provided:

Documentation/ Deliverables	Comply (Yes/ No)
Project Initialization Document	
User Requirement Specification/Gap Analysis Report	
Functional Specification	
Technical Specification	
User Acceptance Test Plan	
User Manual	
Application Operation Manual	
Disaster Recovery Plan & Procedures	
Disaster Recovery Drill	
User Training	
System Nursing	

Please state the documentation/deliverables other those listed above:

10.6. Project Management Methodology

Please describe the project management methodology which will be adopted.

10.7. Project Schedule

Please provide the project schedule by Month Number, e.g. Month 1 is the 1st month since the formal project commencement.

#	Major task/ milestone	From (Month No.)	To (Month No.)
1.	Project Initialization		
2.	Gap Analysis/User Requirement Collection		
3.	System Installation/Customization/Development		
4.	User Training		
5.	User Acceptance Test		
6.	Data Migration		
7.	System Live Run		
8.	System Nursing		

10.8. Quotation Breakdown

	Item	Unit of Measure	Quantity	Unit Price	Total Price
1.	Brain Training System Solution				
	1.1 Content Management System				
	1.2 Mobile App for elders				
2.	Professional Services				
3.	Including the first year of System Maintenance				
4.	Software License				
	Total:				
	Optional Items:				
5.	Stand-alone Apps of Android version for 30 individual games				
6.	English Language (Mobile App)				
7.	iOS platform compatible				

Remarks:

- Unit of Measure can be one of the followings:
    - o   Per named user
    - o   Per concurrent user
    - o   Per server
    - o   Per processor
    - o   Per instance
    - o   Per man-day
    - o   Per report/ function/ module

10.9. Payment Schedule

Milestone	Percentage of Project Sum
Initial Payment	30
Gap Analysis/ User Requirement Collection	10
User Acceptance Test	20
System Live Run	20
Project Completion	20

(*Please tick the appropriate.)

[ ]   I/We confirm that our proposal comply fully with the payment schedule described above.

[ ]   I/We confirm that our proposal does not comply fully with the Payment schedule described above in the following aspects:

10.10. System Support and Maintenance

Please describe the scope of services and service level for the system support and maintenance in the following aspects:

1. Helpdesk services:
   (Service hours, Response time of calls should be specified.)

2. Bug-fixing:

3. Free version upgrade and installation of bug-fixing patches, and the corresponding documentation:

4. Refreshment courses on how to use the System:

5. Offers regarding out-scope services:

6. On-site support services:

Maintenance Fee:

	Item	Unit of Measure	Quantity	Unit Price	Total Price
1.	First Year Annual Maintenance Fee				
2.	Second Year Annual Maintenance Fee				
3.	Third Year Annual Maintenance Fee				

10.11. Free Warranty Period

The duration of free warranty period upon the completion of the project, i.e. end of system nursing, will be _____ months.

10.12. Resume of Major Project Team Members

Please supply the resumes of the major project team members, including but not limited to the Project Director and Project Manager.

10.13.Reference Projects

Please list your reference projects in the table below and provide supplementary details if relevant.

#	System/ Project Name	Client	Supplementary
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			

Appendix A   User Management Chart
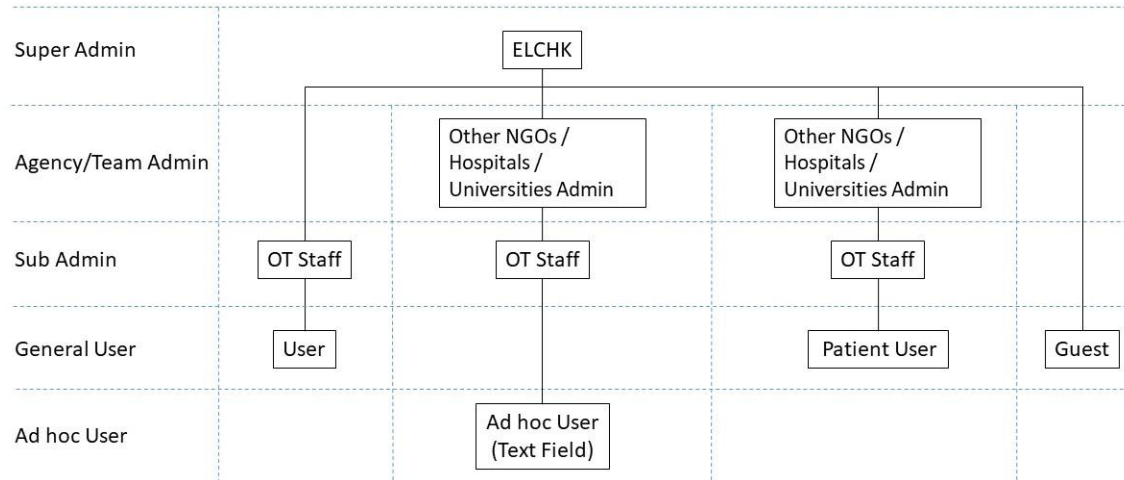
Notes:

- Super Admin - access to all features of the site.
- Agency/Team Admin - access to all the administration features within a single corporate section.
- Sub Admin - privilege to create general users or ad hoc users and assign rights to them.
- General User - with user profiles. Access to all games and all features.
- Ad hoc User - no user profiles provided. A text structure only to record the Ad hoc records, e.g. time and score for a period of time.
- Guest - with user profiles. No attached with any other NGOs/hospital/institution. Access to all games or levels.

Appendix B   System Integration Flow

The followings are the system integration design among LR Service User App, LR Application Server and Brain Training System:

Web Services for creating Accounts
Upon the creation of Service User account, LR Application Server would call Brain Training System web service to submit user information. Brain Training System needs to record service user for later use.
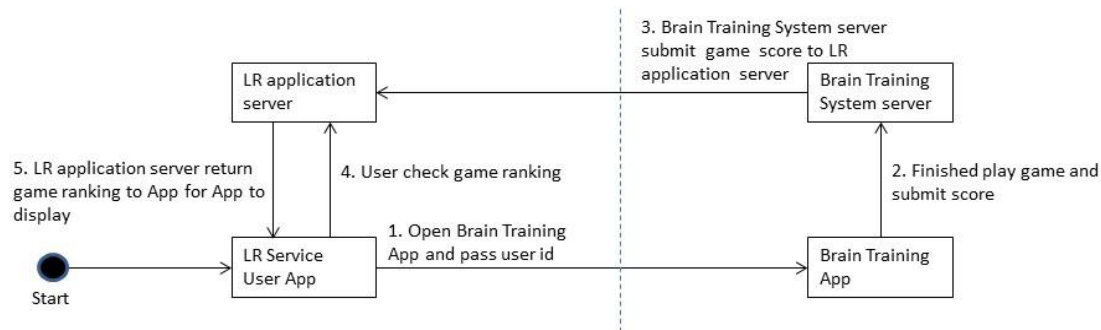
URL scheme
Android App is required to accept URL scheme with parameters (e.g. elchkgame://open&user_id=123).

Web Service for Game related statistic or information
Brain Training System Vendor needs to provide web service for LR Application Server to retrieve statistic or information related to game play (e.g. user game scores, last level, rankings, etc.).

Open game and get ranking flow

Create account flow