

Medical platform for the therapeutic gaming environment "Blexer"

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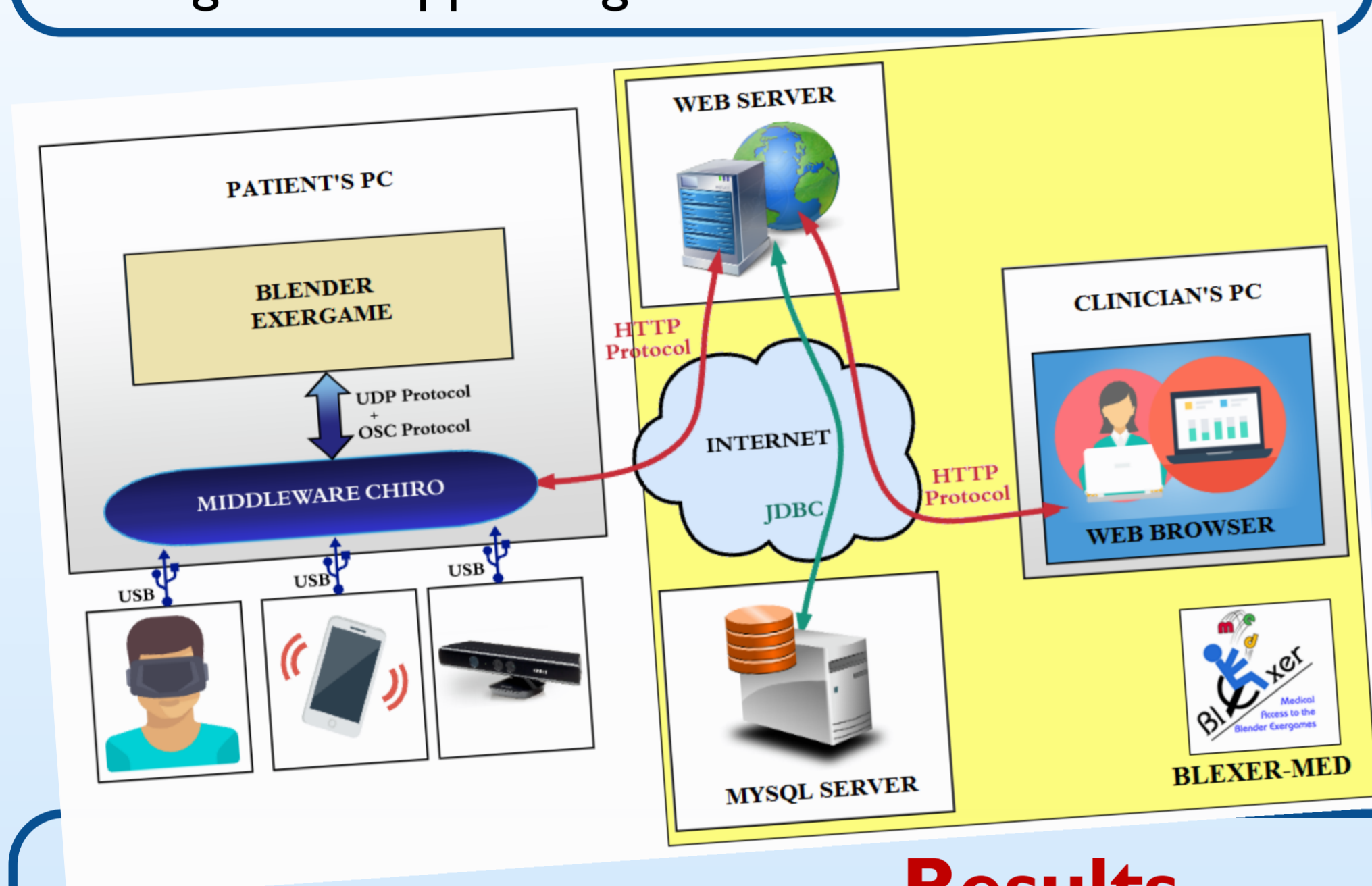
July 2017

Summary In this Project, the Web platform "Blexer-Med" has been designed and implemented as a tool for health professionals to manage their patients while performing physical exercises with video games supporting Kinect at a distance.

Objectives

- Patient's personal information management
- Generality to include different types of games
- Personalized configuration of exercise difficulty
- Visual representation of results
- User friendly interface for the medical staff

System architecture The middleware "Chiro" communicates the video games with different sensors and devices on one hand and the medical web platform on the other hand. The web runs on an Apache Tomcat server, the user information, configuration data and results are stored on a relational MySQL database. Data is exchanged with help of text files in JSON format.



Results

✓ Game and Exercise management

The screenshot shows the 'New Game' form. It has fields for 'Alias (5 characters*)', 'Title(*)', and 'Description(*)'. There is a 'Parameters for exercise configuration' section with fields for 'Param.1', 'Param.2', and 'Description*'. A note states: 'Note: This parameters won't be modifiable later.'

✓ Storage of patient's data

The screenshot shows the patient data for 'Pepe Ramirez'. ID: 3001, Birthdate: 01 May 1990. Login for Chiro: pepe, Password for Chiro: pepe. Joined Blexer: 17 Jun 2017. Observations: observaciones..... Contact phone: 91 324 84 75. Contact email: pepe@hotmail.com.

✓ Configuration of exercise parameters

The screenshot shows the configuration page for 'Pepe Ramirez - Dive And Eat'. It has fields for 'Objetivo(*)' and 'Lim. Tiem.(*)'. A 'Save setting' button is present. Below is a table of 'Last settings':

ID	Signature	Date	Objetivo	Lim. Tiem.	Comment	In Use
7001	María Perez	17/06/2017 14:49	100	120		<input checked="" type="checkbox"/>
21	0**	01/06/2017 21:30	50	10		<input type="checkbox"/>
10	0**	12/05/2017 01:48	15	120	Bajo un poco el nivel	<input type="checkbox"/>

(**) This doctor was deleted

✓ Visualization of results

The screenshot shows the results page for 'Pepe Ramirez'. It has dropdowns for 'Select a game:' (Phibys adventures) and 'Select an exercise:' (Dive And Eat). It shows a table of results:

ROUND	SETTING	DETAILS				
ID	Date	ID	Objetivo	Lim. Tiem.	Time	Corrects
14	03-05-2017 13:31:00	10	15	120	150	40
15	02-12-2016 22:31:00	10	15	120	60	10
25	25-04-2017 16:31:00	0**	20	120	20	10
29	03-05-2017 13:31:00	21	50	10	71	10

** This setting was deleted. Showing 1 to 10 of 12 entries. Previous 1 2 Next. DOWNLOAD RESULTS

Conclusion Via the web-based platform "Blexer-med", the therapist can adjust the difficulty of customized games that incorporate different exercises based on movements captured by the Kinect camera, and therefore provides an additional instrument for physical therapies.

References

[1] M. Jiménez Ramos, "Plataforma médica para el entorno de videojuego terapéutico 'Blexer', July 2017

[6] M. Eckert et al., "Blexer-med: A medical web platform for administrating full play therapeutic Exergames", EAI GoodTech, Nov. 2017