Research Article

Web Page as a Didactic Strategy for the Prevention of Sexual Violence Focused on Elementary School Children

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Abstract

This purpose of this research is to support Ficosec (Trust for Competitiveness and Citizen Security), a civil association, with a tool aimed at elementary school students, since there is a lack of interest and apathy to perform the written activities assigned to students by the association, a proposal was made to implement a website with recreational activities to reinforce the topics planned on prevention of sexual violence. The project has several activity modules; surveys were administered to teachers, social workers, and psychologists, to gather information on the subject, and how to present this type of material to the students through software that concentrates all the information, presented in a graphic and entertaining way. The web page also generates reports and statistics of the schools that have participated in these activities, as well as the children's general and individual responses. The page was developed in HTML and PHP was used as programming language for data queries and registration, and MySQL was used as data manager.

Keywords: Ficosec; MySQL; Website; PHP; Scrum

Introduction

We live in a connected world. The number of devices of all kinds that provide access to the Internet is increasing every day [1]. Information and communication technologies are present in several companies and public and/or private organizations, such as FICOSEC which is an organization that, among other activities, gives talks on sexual prevention to students and parents at the elementary school level. FICOSEC currently uses certain activities to reinforce these topics, to help the children in knowing and/or identifying risk factors in which they can find themselves in and help them understand when they are really in a risky situation. Children can also identify people they can and cannot trust, so the child can ask for help, when at risk. Currently activities are done on paper sheets, and the FICOSEC team has noticed that the children show little or no interest in performing the activities. Therefore, information and communication technologies were considered since most of the children are familiar and use them daily. The idea is to design an entertaining software where all the activities that the children perform on paper are present, but with the help of animated games, sounds, etc., this way, children pay more attention and are motivated at the time of performing the proposed activities.

The confidentiality of the information must also be considered, since it can be compromised if it is accessed by people who are

not authorized to do so. To avoid this, mechanisms were used to restrict user access to certain options [2], so users and passwords were implemented as a security measure.

Materials and Methods

The students from the Computer Systems Engineering program of the Instituto Tecnológico Superior de Nuevo Casas Grandes that worked on this project are Gabriel Antonio González Amaro and María Jaquelin Vega Armendáriz. The methodology used for the creation of the system was Scrum, since it is an agile development methodology, besides being "a framework of good practices for project management" [3]. Current trends in software development are changing the way software projects are managed. Now and in the future software project management will result in more robust and faster software development [4]. In this methodology, partial deliveries of the final product were made, prioritized in the project planning, using a Gantt Chart, to schedule each of the activities and those responsible for each task. The following is the way in which the work was carried out:

- **Sprint or iteration planning:** In this stage an analysis was carried out, where the information required for the development of the system was collected. The Ficosec association provided the didactic material of the topics to be covered, and surveys and interviews were conducted with those involved in this process, such as the social worker, psychologists, teachers, and children of the different institutions where the seminars take place, to evaluate the feasibility of implementing a game in an educational environment. According to the results obtained in these surveys, the software is a good tool and it was decided to continue with project work; and, among others, several aspects were determined to be important in its development, such as functionality, objectives, risks of the sprint, and delivery deadlines. Subsequently, meetings were held with all those involved in the project in order to explain how each module was going to be developed, and at this point is were changes, decision making, improvements, etc. were evaluated.

- **Development stage:** UML diagrams, programming code, design and database were developed. In this project the local service XAMPP was used, this is a free platform server, it is a software that integrates, among other modules, in a single application, an Apache web server, PHP script language interpreters and the MySQL database manager. In this software any operating system can be used (Linux, Windows, MAC or Solaris), in addition, its use is free of charge [5]. The database was segmented as follows: Administrator: Visits, Schools, User. The administrator will be able to verify the visits for each of the games, the schools where they come from, the name, group, and age of the student. Likewise, permissions will be granted to add other users. As for the design of the user and administrator interface, a creative and pleasant interface was made, this interface was developed with Bootstrap in its version 4.1 which facilitated the design and made it an interactive interface, likewise cascade style sheets were used in CSS, enabling the addition of colors, libraries, effects, etc.

- **Sprint review:** A very important function that must be performed in any device is to secure access to its administration, so that only authorized personnel can access it. Two types of configurations are key in this aspect: first, enabling user authentication, and second, securing communication through encryption protocols [6]. Therefore, in this phase, security and functionality tests of the page were performed, both in the user interface and in the administrator interface, to detect possible errors and be able to correct them in time.

- **Feedback:** Project progress and final delivery were presented. Feedback was received on the results, not only from the project members, but also from the clients, and all the necessary adjustments were made.

Results and Discussion

The web page has four modules, the first module has 4 different scenarios, so that the student can determine who is or is not a trustworthy person, after having listened to the talk given by Ficosec. Figure 1 shows one of the scenarios, the school scenario, where the student will drag each of the characters into a box and choose the proper placement of the characters; he or she will choose if that character is or isn't a trustworthy person. This information will be saved in the database and a report will be generated with the answers of each of the children, and with the results generated, it will be possible to identify if any of the children could be going through an inadequate and/or risky

situation, so that the association can channel the student to the appropriate people to examine in a deeper and more professional way the answers given by the student.

Figure 1: School Scenario.

The second module is about pleasant and unpleasant caresses and has activities that enable the student to identify where he or she can and cannot be caressed or touched. The third module is about body knowledge, with 3 activities whose objective is that the student identifies, with the correct name, the parts of the body of a boy and a girl. Figure 2 shows the screen where the student writes his or her data and then has access to the game, where he or she will drag the name of the body part that corresponds to the box in the image.
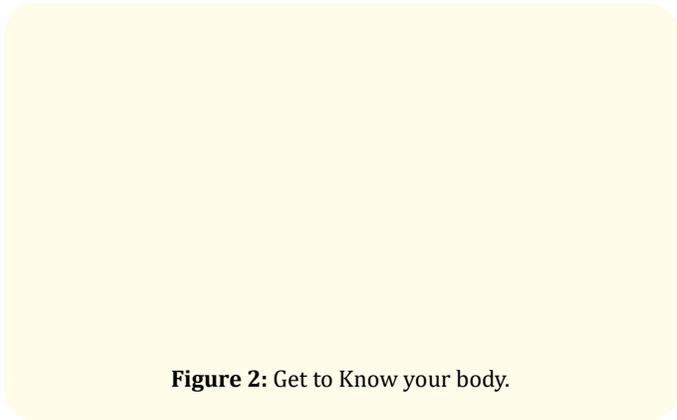

Figure 2: Get to Know your body.

The fourth module is the Administrator. Figure 3 shows the administration panel for the web page, which provides the necessary means for the Ficosec association to manage the web page with the

greatest possible security. To enter this administration panel, it is only necessary to have a username and a password.
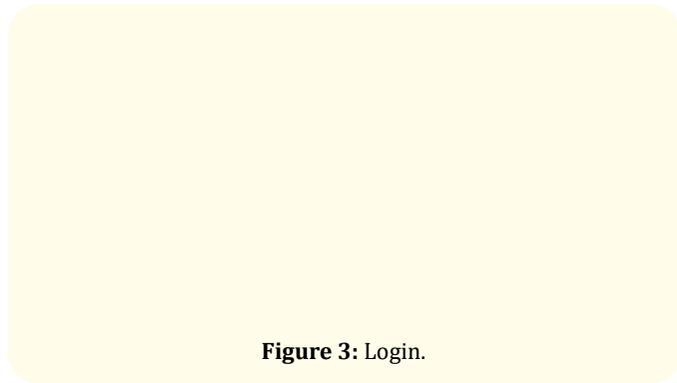

Figure 3: Login.

This page was designed in such a way that, when entering the module, the student's name, and data such as grade, school, and municipality are requested, data that will be stored in the database of the administration panel, as shown in the following figure 4.
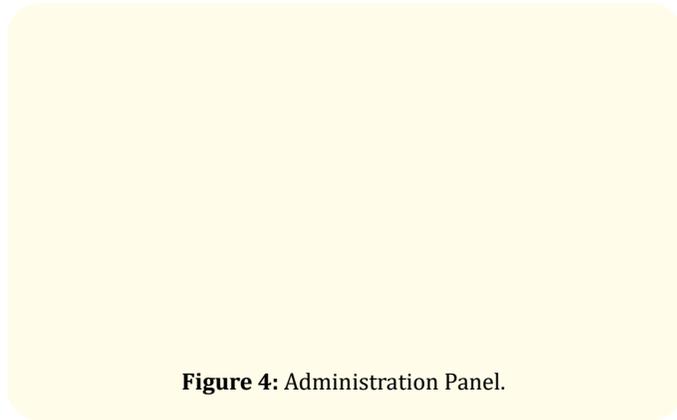

Figure 4: Administration Panel.

In the administration panel, the option will be generated to export the student's information and each of the activities carried out either in PDF or EXCEL format, as can be seen in figures 5 and 6.

Figure 5: PDF Report.

Figure 6: Excel Report.

These reports are generated with data viability, and security. The reports generated are verification of school visits, records of access each time a student has access to the games. Access can be done in a simple way, as shown in figure 7.

Figure 7: Reports.

Mobile telephony is changing today's society as significantly as the Internet has done. This revolution has only just begun [7], so the web page is totally dynamic, flexible, adaptable, accessible to a wide range of electronic devices [8-11].

Conclusion

The use of an entertaining digital application as a support tool in the training of elementary level students is an important tool that helps strengthen interactive and dynamic activities, by replicating the topics that the Ficosec association covers in its lectures. In addition, with the digital application it will be possible to follow up on the results obtained from the activities through the generation of reports. Also, it will be possible to identify if any of the children could be going through an inadequate and/or risky situation, so the association can recommend the student for professional counseling, and follow-through in a more professional way in accordance to the answers given by the student.

Conflict of Interest

There is no financial or conflict of interest.

Bibliography

1. Joyanes Aguilar L. "Internet de las cosas". 1ra. Edición. Editorial: Alfa omega (2021): 24.

2. Terán Pérez and David Moisés. "Administración y seguridad en redes y computadoras". Editorial: Alfa omega (2018): 65.

3. Martel A. "Gestión práctica de proyectos con scrum". 3ra. Edición. Editorial: Antonio Martel. (2016).

4. Lizcano Sánchez J. "¿Por qué usar Scrum?". como metodología de desarrollo de proyectos ágiles en el Sena. Revista Integra: Investigación Aplicada, Desarrollo Tecnológico E Innovación 10 (2020): 9-28.

5. Mozilla Firefox. "¿Qué es un navegador web? Mozilla Foundation". Página web. Consulted in may, (2022).

6. Pérez Torres Daniel. "Redes Cisco" - Fundamentos de Networking para el examen de certificación CCNA. Editorial: Alfa omega (2021): 267.

7. Tomás Gironés, Jesús, El Gran Libro de Android - 8ª. Editorial: Marcombo. (2021).

8. Pacherres Muñoz and Liliana Raquel. PAGINAS WEB Introducción, conceptos, creación de sitios Web, diseño de páginas WEB, herramientas para generar páginas WEB, tipos, principales funciones, aplicaciones. de Universidad Nacional de Educación Enrique Guzmán y Valle Sitio web. Consulted in September, 2022 (2018).

9. Sofía García Bullé. Videojuegos: Una herramienta educativa en potencia., de Instituto para el Futuro de la Educación Tecnológico de Monterrey Sitio web. Consulted in September, 2022 (2019).

10. Toolty. Beneficios del HTML5 y el CSS3. de Toolty Sitio web. Consulted in october, 2022 (2019).

11. Villegas M and Lozoya Sonia. "Uso de las TIC en estudiantes de quinto y sexto grado de educación primaria". *Apertura* 9 (2017): 8.