Applying Smart living Concept for Design and Development of Child Tele-Home Care System into Project Oriented Teaching

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Abstract: The pursuit of Smart Living Technology is a recent trend in which Information and Communication Technology is applied to daily life around home and community. Technology-enhanced learning is also increasingly advocated at different school levels around the world. The case study is exploring the use of concept smart living for design and development of Child Tele-Home care system into project oriented teaching. In practical topics making teaching mode, the boot vocational information science students to caregivers in early childhood home care needs to explore the field, cross link both technical resources. The outcome of project example named as "Child Hand-Washing Reminder".

Keywords: Smart Living; Information Communication Technology (ICT); Project Oriented Teaching; Child Care System

1. Introduction

Under modern economic development, elderly population trend of social structure, resulting in the young adult population, become the primary caregivers in the family, Families are also in the infant stage of development suitable to form important field of self-care ability. Through the use of intelligent life, and information and communication technology operations availability closer to the post-industrial age, role as carer for the family, the actual field of user experience, parenting young children into technology design elements, through strengthened interaction with the child in the future of science and technology and education, and to achieve more effective parenting.

2. Objectives

Therefore this case study, for interdisciplinary integration and innovation to school education under the Union plan, focusing on maternal and child care and family support issues,
To cultivate smart living talent, our main tasks can be divided into the following four parts: 1. Innovative Courses: “sandwich" course development and teaching; 2. International Relationship: international education promotion & relationship development; 3. Online Teaching Resources and Social Network Construction: online interactive multimedia platform implementation; and 4. Promotion Activities: hold supplemental activities for inner collaboration and public participation.
Practical integration of universities and higher vocational education of Chinese General practitioners, professional practice topics and early childhood care, introducing the concept of intelligent life core "Field, Design and Technology". The outcome of project example named as "Child Hand-Washing Reminder" design work, research focuses on applications of science and technology education method, and actual child care on the conceptual design of home care systems products.

3. Methods

In consideration of the system is in operation through a network of integration between programs, so the Reminder development tool is Arduino, and programming languages are similar C/C++. The Arduino main characteristic are provided with text editing interface, the Standard toolbar, graphical control interface etc. The most important is Arduino can have good communication with any inductors. The “Child Hand-Washing Reminder” development process is as follows (refer to Figure 1).

Figure 1. The Parts of Project "Child Hand-Washing Reminder" Design.

We explore issues in case study research design. Quantitative and qualitative data were collected using interviews, focus groups, observations, documentary analysis and projects outcome "Child Hand-Washing Reminder" design. In the study, the researchers designed a situation for the children (refer to Figure 2). When the children into and use the toilet, the "Child Hand-Washing Reminder" will confirm whether these children have wash they hands carefully. In the "Child Hand-Washing Reminder", the researchers use well-designed LED to remind children. When children do not wash their hands, the light will continue to shine and remind them by the hanging on the door of LED Reminder. In the study, a total of 108 participants were invited to take part in this study, and almost all the participants were students from Kaohsiung.

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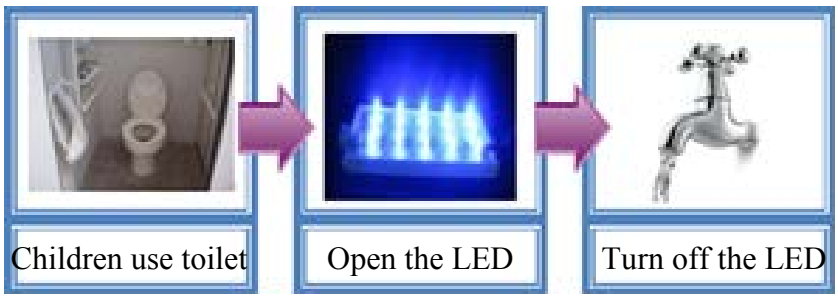

Figure 2. The situation for teach the children hand-washing

4. Results & Conclusion

The four participation of students involved into project oriented teaching program , were guided by the concept of smart living and completed design of the "Child Hand-Washing Reminder".

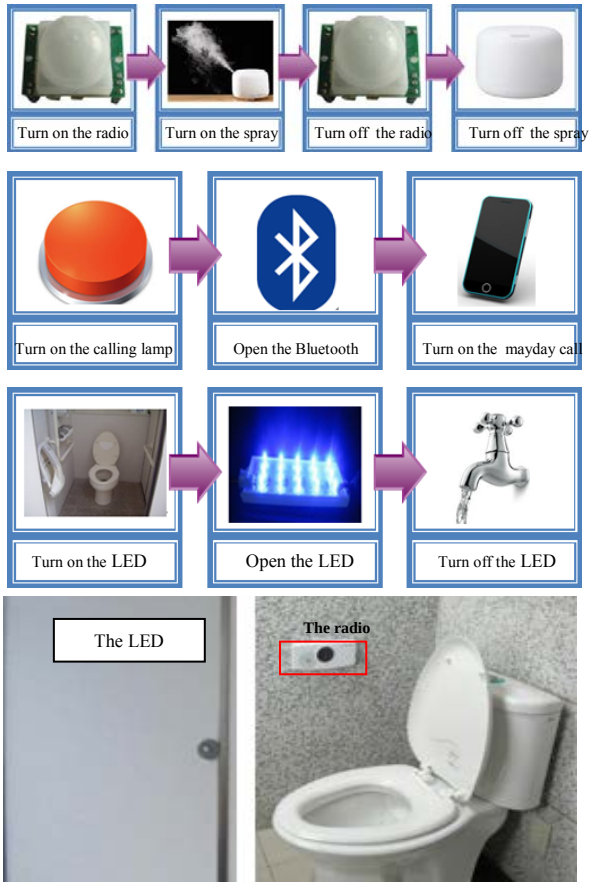

Figure 3. The Framework of Project ""Child Hand-Washing Reminder" Design.

Figure 4. The Parts of Project “"Child Hand-Washing Reminder" Design.

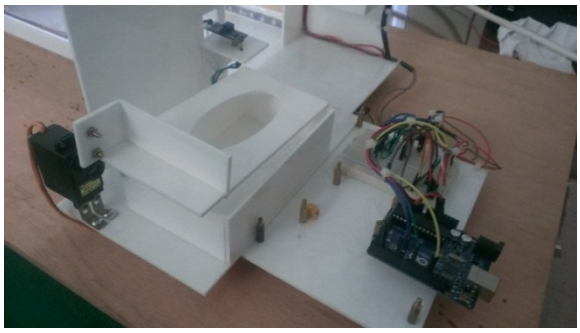

Figure 5. The Parts of Project "Child Hand-Washing Reminder" Design.

More importantly, the study for design the "Child Hand-Washing Reminder " is not only can enhance a child 's willingness to hand washing, but also can interdisciplinary integration and innovation to school education under the Union plan, focusing on maternal and child care and family support issues. In the future, the study also hope to combine more technology elements, and boot vocational information science students to caregivers in early childhood home care needs explore the field, cross link both technical resources to create the best concept of smart living for design and development of Child Tele-Home care system.

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References

Zhao Y.-J.(2013) Getting Started with Arduino Interactive Design. Flag Publishing.

Boxall J .(2013). Arduino Workshop: A Hands-On Introduction with 65 Projects. (1st Edition). Gotop Information Inc.

Huang X.-X., Liu J.-Y., and Lin Y.-X., and Huang Z.-F., (2014). Principle and Application of Micro-Computer, Hua book Corporation.

Introduction of the Talent Cultivation Program for Smart Living Industry, Retrieved September 23, 2015,from http://www.smartliving.org.tw/english/

Wang C.-Y.(2005) Implementation of an XML-based Data Management Scheme for the Infant Tele-Home Care System That Based on ARM9 Embedded Platform

Collins, A. (1989). Cognitive apprenticeship and instructional technology (Teaching report No. 474). Champaign ,IL: University of Illinois at Urbana-Champaign.