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EDIT 730

Final Proposal for IOT Consulting and Services

Learning problem:

The Internet of Things (IOT) is reaching everything in our lives and that will make it a suitable paradigm for practical applications that can change the future of individuals, enterprises, and the public sector. IOT could be embraced in various activities around us to enhance performance and wellbeing, and to reduce costs and resources consumption. At the city level for instance, opportunities are likely to cover things such as improved building management, more efficient traffic flow, and intelligent ways to provide basic services such as street lighting, water and waste management, and policing. In addition, the IOT holds a particular promise in areas like road infrastructure, highway traffic management and health care.

However, the current use of IOT poses many challenges to city leaders who are interesting in developing smart cities. These challenges lead to the view that IOT is often overwhelming, complicated, and expensive. This is especially complex in an environment like Saudi Arabia where this issue would be very controversial in a society that is conservative and concerned with security issues. Thus, the most challenging problem is how to effectively adopt IOT into King Abdullah Economic cities in Saudi Arabia to be excellent models for smart cities in the world.

Target audience:

- Undergraduate students who are majoring in Information and Communication Technology (ICT).
- Age range 18 – 24 years old.
- Varied levels of background knowledge and skills.
- No prior knowledge about the Internet of Things

General knowledge domain:

ICT information and communications technology - or technologies is the knowledge primary domain that includes communication devices or application, encompassing: radio,

television, cellular phones, computer and network hardware and software, satellite systems and so on. In addition, two other domains can be integrated with the primary domain (ICT)

- Business analysis: which is basically the practice of defining needs and recommending solutions.

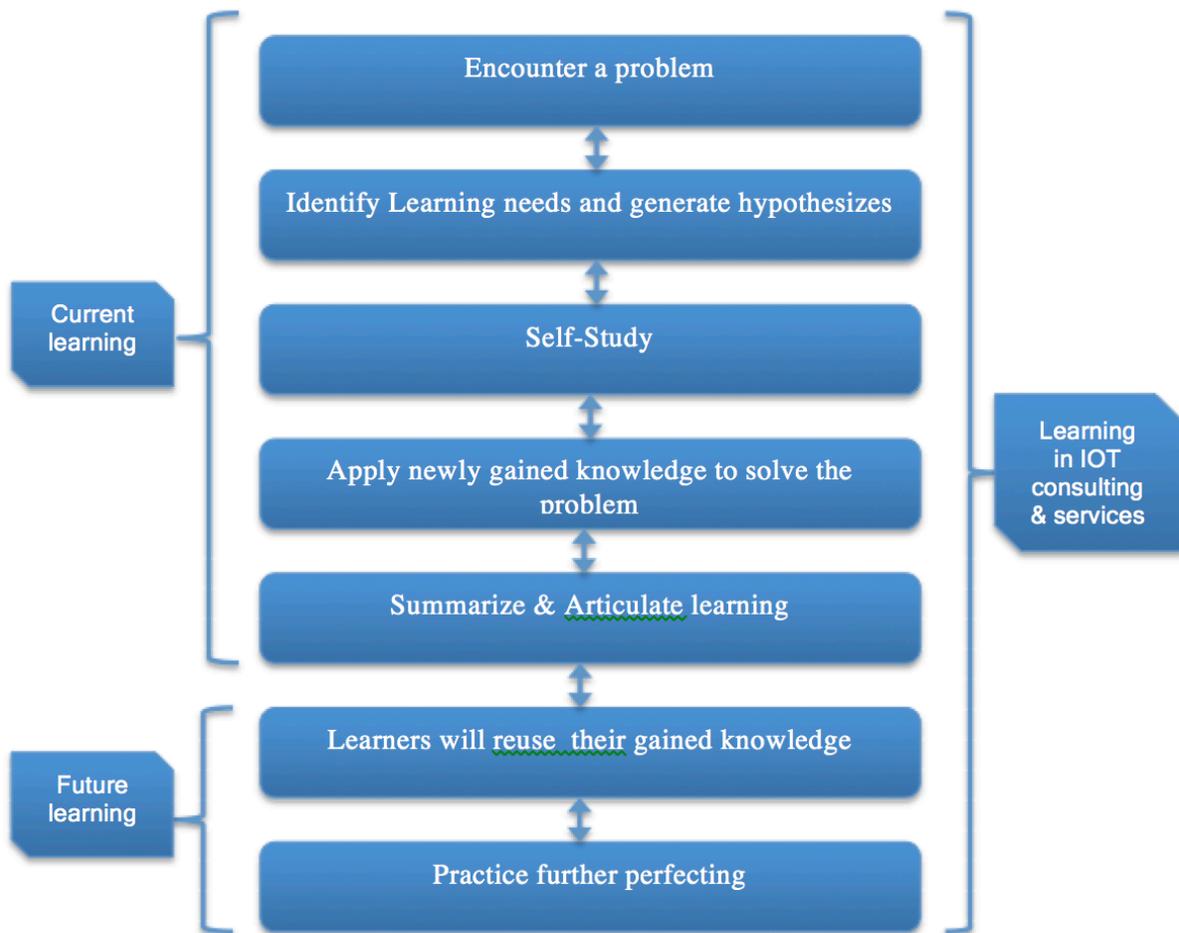
- Project management: which is the process of planning, organizing, motivating, and controlling resources, procedures to achieve specific goals in scientific problems.

Learning outcomes:

- Student will be able to judge whether using Internet of Things (IOT) would be the most appropriate solutions for city problems.
- Student will be able to propose an effective plan for implementing (IOT) in real contexts and defend it.
- Students will be able to estimate the costs for integrating (IOT) including architecture, software, sensors, networks, and labor.
- Students' proposals could have a chance to be funded by city leaders.

Learning Activities:

The pedagogical model that best fits with this learning problem is Problem-Based Learning, because this model will engage students in the learning activities with no formal prior knowledge is assumed. Students in groups are introduced to an authentic problem that is complex and has multiple solutions. Students have to identify their goals, determine an action plan, and then propose a solution. The students' journey in this CLE will be as following:



- The course length is a full academic semester (15 weeks).
- Forming students with groups of five (three IT professional, one business analyst, and one project manager).
- Each student will conduct a research and write an annotated bibliography about the Internet of Things.
- Weekly reflections have to be completed to discuss the learning and actions progress.
- Students groups will take a tour in the city to observe the real environment and then write a group report.
- Students groups will work closely to the instructor to discuss the action plan.
- Each group will come up with a proposal plan for an effective implementation for Internet of Things in the city to solve particular problems such as traffic control or a health issue, and they will determine the problem as a group.
- Students will collaboratively work as groups to share knowledge and improve communication skills.

Assessments:

The assessments of this CLE will be based on the following:

- A final proposal for implementing IOT to solve a specific city issue and presentation.
 - Expert evaluation of the proposal and presentation
 - A city tour report.
 - Annotated Bibliography paper.
 - Weekly reflections.
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References

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Dabbagh, N., & Bannan-Ritland, B. (2005). Pedagogical Models. In *Online learning: Concepts, strategies, and application*. Upper Saddle River, New Jersey: Pearson/Merrill/Prentice Hall

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