

# Designing an IoT Framework to Improve Student Assessment Performance in the Oman Educational Portal

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## ABSTRACT

The internet of things is one of the revaluation technologies trends over the world. The idea of IoT maintains the connection of non-amount things linked together and provides technical support to do multi-tasks in the global system to communicate. In Oman, the educational portal system, despite the use of various technologies, lacks the use of the internet of things technology as one of the latest evaluation tools used worldwide. By analyzing the data for the same students during four educational years for the basic subjects that the student learns in the school, the authors found that there is a difference in the performance percentage, which decreases in varying proportions. In mathematics there is a decrease in the level of student performance. For example, students who obtained an A grade decreased from 15% during the 2016-2017 academic year to 9% during the 2019-2020 academic year.

## KEYWORDS

Assessment Performance, Internet of Things, Oman Educational Portal

## INTRODUCTION

The modern approach in conformity with technologies has become more effective in the presence of many modern and future digitalization aspects. Some trends in this fields are the Internet of things, artificial intelligence, blockchain, cloud computing and the mechanism of providing security features, which naturally operate automatically without human intervention to pave the way for the creation and manufacture of digital content Integrated. A group of researchers in IOT is very important to improve the education system by exploiting technology in different fields of learning. Develop IOT system to contribute the education sector (Ali & Hassan, 2018) and the inclusion of IoT into the education domain by using State of the Art tool through Systematic Review. (Kassab, DeFranco, & Laplante, 2020) also, for enhancing ICT in smart education system using smart devices and attractive tech via model for connecting students to study resources within virtual classroom as one of web-based platform (Rahman, Deep, & Rahman, 2016). To the best of our knowledge, adoption of IOT in education is crucial for developing a newly set learning methodologies and techniques across the country and rise the learning levels to the next generation to assure educational growth. Various

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methods and strategies performing different tasks in modern education to increase the efficiency of innovations and creations for producing smart students based on assessment, skills, and behaviors to make their life easier. It feeds the teachers and students with all management staff to move forward with latest technology by enhance them in using cases and responses as a part of study plan over all schools in sultanate of Oman.

## BACKGROUND

Sultanate of Oman has unique features and diverse environments that enable it to deal with many aspects of information in terms of digitize education via many public and private entities over the country. It contributed effectively to the existence with a set of challenges and prospects that keep a digital society serves the aspirations needed in the state of using IOT technologies especially in educational institutions. The reasons of using of IOT in assessment for educational institutions in the Sultanate of Oman according to the following considerations:

- The path of digital transformation and modernization of its methodologies and techniques in the world.
- The education method is compatible with the components of assessment linked with the content of the product and industry in proportion to the needs of teachers, staff, and students at schools.
- Planning and forecasting the future of technology in education and school-wide in general.
- Focus on the applications and frameworks that deal with the principles of the fourth industrial revolution in the field of technology and digital content industry.

## PROBLEM STATEMENT

The current traditional assessment system flow where the teacher goes to the classroom to teach students who are already sitting inside class. Then a teacher has start discussing the topics, subjects during class time and when hence he finishes the topic, he/she will give some exercises, homework, activities, projects, and exams. Then every student will get score based on his previous assignments and study requirements during the semester. Hence the semester ends then the students will get the final grade (excellent, very good, good, medium, low). The teacher must record all student's assessment to record online and store data through DB and then these DB will relate to central database manage by MOE to review and approved. At the end of the semester, the student will get his/her final score in two paths: hardcopy (certificate) and softcopy (Education Portal Platform). But there is no comparison

Table 1. Terms and Keywords

Terms	
Internet of Things	Maintains the connection of non-amount things linked together and provide technical support to do multi tasks in global system to communicate with others.
Assessment Performance	Various methods and strategies performing different tasks to increase the efficiency of innovations and creations for producing smart students based on assessment, skills, and behaviors to make their life easier.
Oman Educational Portal	An electronic portal regarded a true leap jump in the educational field, and it aims on one hand to connect schools and school districts automatically to the Ministry and on the other hand to provide electronic services to students and parents that increases their interaction with the school, teachers, and school district.

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