WWW.IJRPR.COM

International Journal of Research Publication and Reviews

Journal homepage: www.ijrpr.com ISSN 2582-7421

IOT-BASED APPLICATION LEARNING PLATFORM FOR HEALTHCARE SERVICES

Rakesh Udit Thakur

Model College, Mumbai, Maharashtra, India,
Email:Thakurrakesh0611@gmail.com

ABSTRACT

Flip learning and Internet of Things (IOTs) concepts have gained much attention in the recent years. These concepts with CBL can improve learning capabilities by providing real and evolutionary medical cases. It also enables students to build confidence in decision making, and to enhance teamwork environment efficiently. This paper proposes an IOT-based Flip Learning Platform, called IOT. IoT shows great potential in the in healthcare field, especially for reducing the cost of care [19]. Due to the low cost and reduced size of sensor devices, IoT can play an important role in enhancing the learning capability of medical students by providing real evolutionary medical cases.

Keywords: *Internet of things, cloud environment, flip learning, case-based learning, medical education.*

1. INTRODUCTION

IoT technology brings numerous applications in healthcare, from remote monitoring to smart sensors to medical device integration. It keeps the patients safe and healthy as well as improves the physician delivers care towards the patients.. Due to the low cost and reduced size of sensor devices, IoT can play an important role in enhancing the learning capability of medical students by providing real evolutionary medical cases.. However, there is still lack of systems and frameworks to efficiently exploit IoO data and use it for the purpose of extracting knowledge, creating knowledge with partial involvement of the field expert, and using the acquired knowledge for providing real-time patient care and treatment.

IOT-based Flip Learning Platform (IOTFLIP):

The Data Aggregation module deals with heterogeneous data interoperability, load balancing, and smart data communication issues i.e. communicating only when required, by either storing the data locally, temporarily, or discarding it when not required. This data aggregation & Pre Processing requires resources which are not available in relatively less rich sensor nodes and other perception layer devices. Therefore, fog is incorporated here. Fog computing is a small cloud that acts as an extended cloud to the edge of the network.

BENEFIT OF USING HEALTHCARE INDUSTRY IN IOT:

- **Telemedicine.** Medical Internet of Things paired with mobile apps introduces a whole new model of connectivity and communication between patients and doctors.
- **RFID for patient monitoring.** RFID tags and labels have very broad applicability from people tracking to sanitation control.
- **Wearable devices transmit data directly to doctors.** Most often we will be talking about watches, bands, bracelets and other trackers that collect important information about the patient condition (heart rate, blood pressure, pulse, blood sugar, etc.) and send it to hospitals or directly to doctors for analysis and treatment correction.
- **Diagnosis, preventive medicine.** Patient records, test results, treatment progress and other data that can be collected using IoT are important to improve diagnostic accuracy and drive the development of preventive medicine.

2. REVIEW OF LITERATURE

CBL is one of the successful approaches in student-based pedagogy. Jones. described that CBL arose from research that indicated that learners who commenced by tackling problems before attempting to understand underlying principles had equal or greater success that learners using a

traditional approach. CBL is described as active learning that is focused around a clinical, community or scientific problem. Learning starts with a problem, query or question that the learner then attempts to solve. The learner attempts to solve a specific problem while acquiring knowledge on how to solve similar problems.

The IOTFLIP integrates the features of existing individual platforms and can be used for medical as well as other domains.

Data Perception Layer

In this layer, the identification of devices is performed, where devices are used to monitor, track, and store patients' vital signs, statistics or medical information.

Data Aggregation & Pre Processing Layer

This layer is divided into Data Aggregation and Data Pre Processing modules. The Data Aggregation module deals with heterogeneous data interoperability, load balancing, and smart data communication issues i.e. communicating only when required, by either storing the data locally, temporarily, or discarding it when not required.

OBJECTIVES:

The purpose of the current study was to identify and map the current IoT developments in medicine through providing graphical/tabular classifications on the current experimental and practical IoT information in medicine, the involved medical sub-fields, the locations of IoT use in medicine, and the bibliometric information about IoT research articles.

3. METHODOLOGY

The Internet of Things (IoT) is an important representative of the new generation of information technology. It is the result of rapid development in the field of wireless communications in recent years, and it is a network that extends on the Internet [1]. It can connect various information sensing devices (such as Radio Frequency Identification, infrared sensors, laser scanners, etc.) to the Internet to realize the "Internet of Everything" [2]. At present, IoT has been widely used in various fields, such as smart city, smart home, intelligent logistics, intelligent transportation, etc. Among them, smart health is also one of its important application areas. There are countless people who lose their lives every year due to various diseases or health problems. In terms of chronic diseases, the number of people dying from chronic diseases accounts for 60% of the total number of deaths worldwide. People are paying more and more attention to health issues. By employing these concepts, the IOT technology has helped healthcare professionals to monitor and diagnose several health issues, measure many health parameters, and provide diagnostic facilities at remote locations.

4. RESULTS

Flip learning and Internet of Things (IOTs) concepts have gained much attention in the recent years. IoT enables patient monitoring in real time, thus significantly cutting down unnecessary visits to doctors, hospital stays and re-admissions. Improved Treatment: It enables physicians to make evidence-based informed decisions and brings absolute transparency. This paper proposes an IOT-based Flip Learning Platform, called IOTFLIP, where IOT infrastructure is exploited to support Flipped case-based learning in cloud environment with state of the art security and privacy measures for the potential personalized medical data. It also provides the support for application delivery in private, public, and hybrid approaches.

5. CONCLUSIONS

IOT-based Flip Learning Platform, called IOTFLIP, where with state of the art security and privacy measures for the potential personalized medical data Internet of Things is the concept in which the virtual world of information technology connected to the real world of things.The IOTFLIP is a scalable and designed to absorb futuristic requirements of the system. Currently, it is designed for the first-year unit for School of Medicine, University of Tasmania, Australia and will be deployed in our following year. These challenges will form a base for future advancement and research focus in the upcoming years.

FUTURE WORK

This research could be expanded into a larger study involving significantly more participants and organizations, helping to determine additional opportunities or threats cloud computing would pose to those organizations and their business processes.

ACKNOWLEGMENT

It gives me great pleasure to present my Research paper on **"IOT-based application learning platform for Healthcare services"**

I would like to express my sincere thanks to all the teachers who helped us throughout. I would like to acknowledge the help and guidance provided by our professors in all place during the presentation of this research paper. We are also grateful to, Head of Department. This acknowledgement will

remain incomplete if we do not mention sense of gratitude towards our esteemed Principal who provided us with the necessary guidance, encouragement and all the facility available to work on this project.

REFERENCES

[1] J. Nord Quist, K. Sund Berg, L. Johansson, K. Sandelin, J. Nordenstm, Case-based learning in surgery: lessons learned, World Journal of Surgery 36 (5) (2012) 945–955.

[2] K. Brown, M. Commandant, A. Kartolo, C. Rowed, A. Stanek, H. Sultan, K. Toor, V. Wininger, Case based learning teaching methodology in undergraduate health sciences, Interdisciplinary Journal of Health Sciences 2 (2) (2011) 47–65.

[3] J. E. Thistlethwaite, D. Davies, S. Ekeocha, J. M. Kidd, C. MacDougall, P. Matthews, J. Purkis, D. Clay, The effectiveness of case-based learning in health professional education. a beme systematic review: Beme guide no. 23., Medical teacher 34 (6) (2012) 421–444.

[4] M. Srinivasan, M. Wilkes, F. Stevenson, T. Nguyen, S. Slavin, Comparing problem-based learning with case-based learning: effects of a major curricular shift at two institutions, Academic Medicine 82 (1) (2007) 74–82.