

{tag} International Journal of Computer Applications
Foundation of Computer Science (FCS), NY, USA

[Volume 181](#)

-
[Number 46](#)

Year of Publication: 2019

Authors:

Vasudha K., Yashaswini S., Ashwini K,

10.5120/ijca2019918588

{bibtex}2019918588.bib{/bibtex}

Abstract

This paper proposes the concept of Machine Learning and Internet of Things (IoT) to implement a Smart Intelligent Toilet. Machine learning is used to regulate the formation of crucial models in order to enable algorithms to learn with the help of available data. IoT is regarding embedding system to the internet. Machine learning and IoT has experienced a boost in acceptance among many fields including the medical field. The modern and upgraded laboratory is very much necessary as diagnosis of a disease and analysis of a person's health in a precise form is very much important. Artificial intelligence creates a platform to be precise in the measurement of any parameters using various algorithms. In this paper, we propose to apply Regression algorithm to predict the output values like urine test, based on input features such as urine sample from data sets fed in the system. The algorithm builds a model based on the features of the training dataset and also makes use of the model to predict value for new data. Support Vector Machine(SVM) is a machine learning algorithm used for both classification and regression challenges. IoT devices fail to function without artificial intelligence and artificial intelligence in turn needs IoT devices to be of better use for a smarter human kind. Both these

technologies jointly hold the power to alter our lives to better standards.

References

1. <https://www.expertsystem.com/machine-learning- definition/>
2. <https://www.wipro.com/en-IN/business-process/what-can-iot-do-for-healthcare-/>
3. <https://www.surgeryencyclopedia.com/St-Wr/Urinalysis.html>
4. <https://www.sensorsmag.com/components/iot-sensors-thrive-healthcare-markets>
5. Lakshmi Kadlimatti, Jyothi Hiremath, K Bhat ,“Design and development of automatic urine analyzer suitable for public toilets and transmission of vital composition to user’s registered cell phone”, International Research Journal of Engineering and Technology (IRJET).
6. Sabeel T.M.A, CheHarun F.K., Eluwa S.E., Sabeel S.M.A, “Detection of volatile compounds in urine using an electronic nose instrument”, Computing, Electrical and Electronics Engineering (ICCEEE)
7. <http://istep.ifmefector.com/2013/04/09/intelligent-toilet- monitors-your-health/>
8. Ki Tae. Nam, Jun Seob. Ko, Sung Bin. Park, and Hyung Ro. Yoon “The lavatory-typed health monitoring system with linear system identification scheme for home healthcare”Proceedings of the 29th Annual International Conference of the IEEE EMBS Cité Internationale, Lyon, France.
9. T.Schlebusch ,“Unobtrusive Health Screening on an Intelligent toilet seat” .
10. <https://www.healthline.com/health/urine-ph>
11. <https://www.analyticsindiamag.com/top-6-regression- algorithms-used-data-mining-applications-industry/>
12. <https://www.analyticsvidhya.com/blog/2017/09/understai ng-support-vector-machine-example-code/>
13. Carsten Röcker RWTH Aachen University, Germany Martina Ziefle RWTH Aachen University, Germany, “E- Health, Assistive Technologies and Applications for Assisted Living: Challenges and Solutions“, MEDICAL INFORMATION SCIENCE REFERENCE Hershey • New York
14. US patent on “Toilet device with health examination system”, Patent No.: US 4961431 A.
15. <https://www.businesswire.com/news/home/20180828005288/en/InnovativeApplications-IoT-Healthcare-Infiniti- Research>

Index Terms

Computer Science

Algorithms

Keywords

SVM, regression, urine analyzer, Global System for Mobile(GSM), electrocardiogram, bio-impedance strategy , Raspberry pi microprocessor, aurdino board.