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HUMAN ACITIVITY PREDICTION USING SMART ACCOUNTABILITY APPLICATION

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***Abstract* - Human activities detection is a very difficult task in present systems. Human Activity Patterns Prediction (HAPP) is the proposed system which is used to recognize activities of human patterns that are used for smart home applications. The HAPP is the model which is integrated with frequent pattern mining, analysis of clusters and calculating predictions to analyze the energy usage changes sparked by occupant's behavior. The proposed system HAPP analyzed the consumption of energy patterns which are at the appliance level, this level belongs to the activities of human. This system focuses on detecting accurate human activities with high accuracy.**

Index Terms - human activities, pattern mining, analysis of clusters.

According to studies, 66 percent of the global population will reside in urban areas by 2050 [1]. This massive influx of people into downtown areas will have a huge impact on the demand for pharmaceutical services assets. This dramatic shift in statistics puts a lot of pressure on various cities to rethink their traditional and cultural approaches to providing the exact health services for residents. In response to new needs and challenges, urban communities are already embracing massive advanced change with the purpose of assisting in the maintenance of urban networks while also providing better conditions. [2] [3].

As a result of this shift, a substantial number of households are being outfitted with smart devices (such as smart metres, sensors, and so on.) that generate massive amounts of fine-grained and indexical data that may be analysed to aid human services administrations. The advent of massive data mining innovations, which provide techniques for preparing massive amounts of data for major encounters, that can aids all in understanding of how people approach their lives. Observing the advancement of machine usage inside a smart home, for example, can be used to inadvertently determine an individual's prosperity based on verified data. Because people's habits are mostly defined by regular schedules, identifying these various routines allows all to see odd behaviors that may indicate people's problems with self-care, such as not planning meals or not using the shower/shower [4] [5].

The distribution of fat tail jump sizes and latency that characterize individual human trajectories strongly suggests the specific relevant CTRW (Continuous Time Random Walk) model of the human mobility, but the human trajectories are truly random. No one seriously believes it is. Given the most importance of human mobility, from epidemic modeling to traffic forecasting and urban planning, we need a quantitative model that can explain the statistical approach characteristics of all the individual humans' trajectories. Introducing two principles that govern human orbit, enabling to build statistically the self-consistent microscopic models of individual human mobility. Not only can this model take into account empirically observed scaling rules, but it can also analytically predict most of the associated scaling indices. As a rule, activity detection can be used for great social benefits, especially in real-life human-centric applications such as elderly care and healthcare. This article focused on detecting simple human activity. Detection of complex activity remains a challenging and active field of study, and the nature of human activity presents other challenges.

Understanding human activity requires activity recognition and discovery of activity patterns. The first focuses on accurate detection of human activity based on a predefined activity model. Activity pattern discovery Researchers first build a ubiquitous system and then analyze sensor data to discover activity patterns. Human activity detection system using electroencephalogram (EEG). First, the subject's EEG data is measured. In most traditional studies, EEG is used in many sensors. Therefore, subjects must eat or smoke while using the EEG interface. However, this situation is not practical for the subject. This study uses only one measurement point, the "FPI", to account for stress on the subject. First, measure the EEG and EMG data of the subject. The EEG features are then extracted using Singular Value Decomposition (SVD). From the results, classify EEG patterns according to fuzzy c-means (FCM). If the EEG pattern cannot be matched to each activity, discriminant analysis (DA) is used. It takes into account the EEG characteristics of activity. Then run a computer simulation to show the effectiveness of the proposed method.

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The goal of this research is to address the fact that detecting human behaviours is a tough task in today's systems. The suggested system, Human Activity Patterns Prediction (HAPP), is used to recognise activities of human patterns that are used in smart home applications. The HAPP is a model that combines frequent pattern mining, cluster analysis, and prediction calculations to examine energy usage changes caused by occupant behaviour. The suggested system HAPP assessed energy consumption patterns at the appliance level, which is a level that pertains to human activities. This technology is designed to detect precise human behaviours with high precision.

II. DESIGN

The UML is a trendy language for analyzing, visualizing, setting up and document the machine and the factors are a pictorial language which affords a terminology and set of representations and rules. The UML deals with the conceptual as well as physical representation of the entire system. It loads the selections and understanding about systems that ought to be constructed. It is used to understand, design, configure and manage data about the entire system. Depending on the importance and the improvement over the culture, and the some of the artifacts are dealing with more less formally than remaining. Such artifacts are now not only deliverables of a project; they are additionally vital in measuring, controlling and speaking about a gadget at some stage in its development and after its deployment. The UML pointing the documentation for a system architecture. Finally, the UML for modeling the things to do of mission planning and to release for the management.

Building blocks of UML:

- Things
- Relationships
- Diagrams

Things in UML:

- Structural
- Behavioural
- Grouping
- Annotational

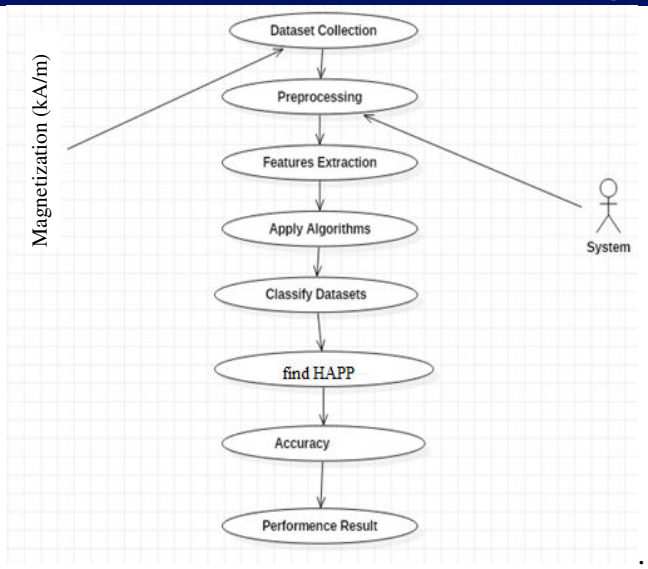

Fig. 1 Use case diagram

III. TESTING

Software trying out is an examine that carried out to furnish stakeholders along with records about the excessive of the product nor service under-neath tests. Software tests also presents a role of unbiased view of the software program to permit the commercial enterprise to respect and understand the impact factors at implementation level of the software. Some Testing techniques are included, however there exists no longer constrain the technique of executed an application or software with the intent of discovering software bugs.

Software testes are included with additional cited as the method of validate and verify that software program application product meets are the commercial and industrial or enterprise and technical necessities that guided its format and development phases. The works are anticipated and are applied with the same characteristics.

A. Testing Methods

Functional Testing

Functional exams provides the systematic that demonstrations the focus of examined datasets are available as special with the aim of the experimental enterprise and technical issues requirements, device document, and consumer manuals.

Functional trying out is centered based on the following items:

Functions: Identify features should be exercised.

Output: Identify training of software outputs need to be exercised.

Systems-Procedures: device ought to work precise

Integration Testing

Software integration testing is the incremental integration testing of two or extra integrated software elements on a single platform to produce screw ups brought on by using interface defects.

Test Case for Excel Sheet Verification:

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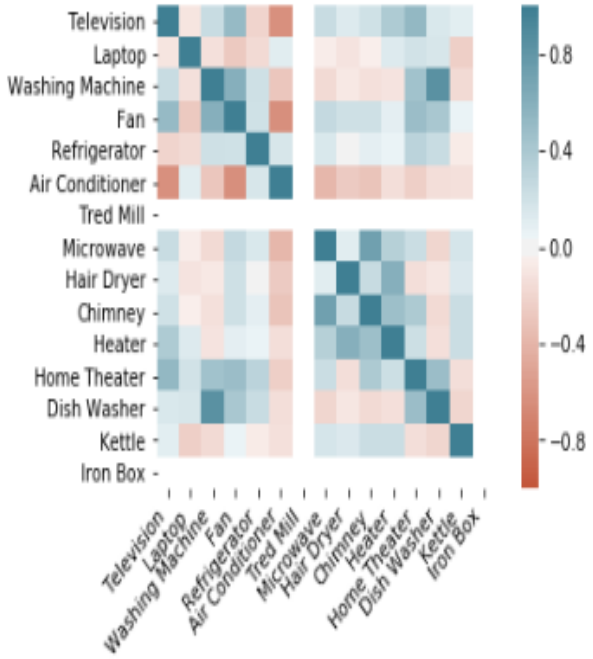
Here in computing device learning we are dealing with dataset which is in excel sheet format so if any check case we want capability we want to test excel file. Later on classification will work on the respective columns of dataset.

SL #	TEST CASE NAME	DESCRIPTION	STEP NO	ACTION TO BE TAKEN (DESIGN STEPS)	EXPECTED (DESIGN STEP)	Test Execution Result (PASS/FAIL)
1	Excel Sheet verification	**Objective:** There should be an excel sheet. Any number of rows can be added to the sheet.	Step 1	Excel sheet should be available	Excel sheet is available	Pass
			Step 2	Excel sheet is created based on the template	The excel sheet should always be based on the template	Pass
			Step 3	Changed the name of excel sheet	Should not make any modification on the name of excel sheet	Fail
			Step 4	Added 10000 or above records	Can add any number of records	Pass

IV. RESULTS

Fig. 2 Correlation Matrix



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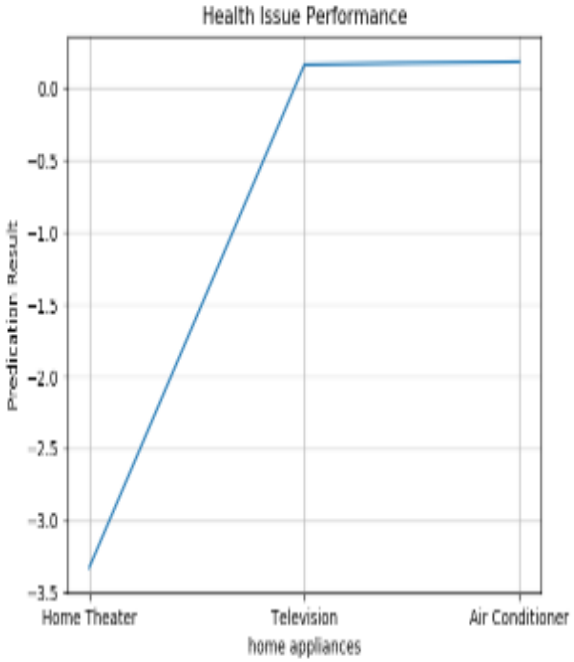

Fig. 3 Health Issue Performance

V. CONCLUSION

The proposed smart accountability application for human activity prediction is the model adopted the several frequent pattern mining and analyses of clusters are used to analyze the user behavior. The consumption of energy based on the patterns which are at the appliance are used level and this mainly belongs to several human activity prediction. proposed system focuses on detecting the several patterns such as by adopting the FP-growth algorithm and to improve the prediction is K-means clustering and decision tree are used. smart accountability application for human activity prediction gathering the information of human daily resource are used in daily of human life. This study perform performance analysis on different classification models like Decision tree , Random forest tree are in smart accountability application for human activity prediction.

REFERENCES

[1] J. Clement, J. Ploennigs, and K. Kabitzsch, Detecting Activities of Daily Living with Smart Meters. Springer, Germany, 11 2013, ch. Advance Technology and Societal Change.

[2] J. Liao, L. Stankovic, and V. Stankovic, “Detecting household activity patterns from smart meter data,” in Intelligent Environments (IE), 2014 International Conference on, 6 2014.

[3] Y. C. Chen, H. C. Hung, B. Y. Chiang, S. Y. Peng, and P. J. Chen, “Incrementally mining usage correlations among appliances in smart homes,” in Network-Based Information Systems (NBiS), 2015 18th International Conference on, 2015.

[4] Kommula, B. N., & Kota, V. R. (2022). An effective sustainable control of brushless DC motor using firefly algorithm–artificial neural network based FOPID controller. Sustainable Energy Technologies and Assessments, 52, 102097.

[5] C. Chalmers, W. Hurst, M. Mackay, and P. Fergus, “Smart meter profiling for health applications,” in 2015 International Joint Conference on Neural Networks (IJCNN), July 2015.

[6] J. Liao, L. Stankovic, and V. Stankovic, "Detecting household activity patterns from smart meter data," in Proc. Int. Conf. Intell. Environ. (IE), vol. 6. Jul. 2014,pp. 71–78.

[7] C. Chalmers, W. Hurst, M. Mackay, and P. Fergus, "Smart meter profiling for health applications," in Proc. Int. Joint Conf. Neural Netw. (IJCNN), Jul. 2015, pp. 1–7.

[8] Kommula, B. N., & Kota, V. R. (2022). Design of MFA-PSO based fractional order PID controller for effective torque controlled BLDC motor. Sustainable Energy Technologies and Assessments, 49, 101644.

[9] S. Hochreiter, J. Schmidhuber, Long short-term memory, Neural Computation, 9(8): 1735–1780, 1997.

[10] J.K. Chorowski, D. Bahdanau, D. Serdyuk, Attention-based models for speech recognition, Advances in Neural Information Processing Systems, 577–585, 2015.

[11] D. Bahdanau, K. Cho, Y. Bengio, Neural machine translation by jointly learning to align and translate, arXiv preprint arXiv:1409.0473, 2014.

[12] K.M. Hermann, T. Kocisky, E. Grefenstette, Teaching machines to read and comprehend, Advances in Neural Information Processing Systems, 1693–1701, 2015.

[13] Z. Lin, M. Feng, CN. Santos, A structured self-attentive sentence embedding, arXiv preprint arXiv:1703.03130, 2017.

[14] Kommula, B. N., Song, H., Chen, L., & Xu, C. (2021). Efficient energy management of hybrid renewable energy sources-based smart-grid system using a hybrid IDEA-CFA technique. International Transactions on Electrical Energy Systems, 31(5), e12833.

[15] R. Pascanu, T. Mikolov, Y. Bengio, Understanding the exploding gradient problem, CoRR, abs/1211.5063, 2012.