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A Smart Human Resource Approach using Artificial Intelligence with Improved Employee Satisfaction for Better Sustainability in Organisation

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Abstract: Employee welfare and management, in the modern sense, denotes to all of an employer's efforts aimed at having explicit benefits and facilities to employees in accumulation to their salaries or compensation. This paper presents AIB-HRM (Artificial Aptitude based Humanoid Resource Managing) for better employee management which is a holistic approach using IT platform embedded with AI technology. The proposed system has been designed using the modern technicalities of Artificial Intelligence with embedded software Python and it was implemented in a company named CITRONINX, India. After the survey taken before and after the implementation of the software, it was found that there is a huge distinction in terms of better employee management, retention and employee satisfaction level. The research proposes a better AI podium appropriate for better employee satisfaction in any standard Organization.

Keywords: Employee Welfare, Employee Satisfaction, sustainability, Human Resource Management

1. Introduction

The languages employee's prosperity and worker's prosperity are used very often to refer to well being of people in a company. New happiness measures are always supplementary to the existing ones along with the communal changes in the companies. It's also a widespread notion [1]. The contemporary perception of worker safety encompasses all of the employer's activities that are aimed at providing their workforces with bound amenities and facilities in totaling to earnings and moneys [2]. It appears that these services are not offered as a gesture of goodwill on behalf of the employer, but rather as a means of maintaining employee morale in order to attain administrative objectives. As long as medical benefits, recreation services, sequestration welfares, etc. to workforces is not only in the members' interest, but also in the government's interest as an entire[3]. As a result of receiving such services, employees are happy and committed to the organisation.

The Purpose and Scope of the current research work are as follows.

- To aid the industry in understanding the various statutory and extra-statutory welfare initiatives

implemented by the enterprises.⁴⁾

- To demonstrate the welfare program's overall effectiveness. As a result, corporate saw the flaws and made the necessary adjustments, which was supported by gift analysis.⁵⁾

- Understanding the various levels of welfare programs and the benefits provided to employees by the company will be helpful.⁶⁾

2. Literature Review

Intelligent machines are intelligently redefining both our personal life and our industries.⁷⁾ Whether we needed to travel to an unfamiliar place, look for work, or wanted to make a transaction. Artificial intelligence (AI) is supplying effective answers. It has made things simpler and ensured that the relevant information is available when it is needed. We carry out repetitive tasks in the human resources department and other areas. As a result, AI has influenced HR in various ways to carry out various tasks. As a result, we might conclude that human intervention in HR is still necessary.⁸⁾ These devices were created to assist HR professionals in making decisions by foretelling their subsequent actions. Here, we'll examine some of the most important aspects of

artificial intelligence (AI). The Employee wellbeing measurements have been defined in a variety of ways by various academics.⁹⁾ The following are a few of them:

In view of the investigation of the communication between AI, keen training and HRD, AI helping Human Resource management¹⁾ was broke down as far as student, colleague, learning backing and assessment, asset proposal, and customized versatile learning. Furthermore, the application way of HRD was reshaped by AI in the perspective on artificial intelligence.¹⁰⁾

C. Athukorala et.al²⁾ refer that progression in innovation is remarkable. Moore's law upholds this contention, by expressing that the processing power copies like clockwork. In such a reason, numerous IT organizations have ascended to address the difficulties. These organizations give different arrangements in different fields of ventures, stretching the boundaries of innovation. Human asset is viewed as the main resource in any association. To use this resource helpfully, an association should have extraordinary Human Resource Management rehearses.

F. Gao; K. Deng; C. Hu³⁾ discuss that the Coronavirus Disease(COVID-19) is pervasive around the world. Released patients for the most part have diminished lung work, resistant capacity, mental and social versatility. Giving dynamic, exhaustive and constant wellbeing administrations for patients getting back to the local area and families has turned into an unmistakable issue in the worldwide general wellbeing field. Lately, artificial intelligence (AI) and huge information the executives has been broadly utilized in the field of medication, yet it is still generally clear in the field of wellbeing the board. In light of this, such examination is directed by the conventional Chinese medicine(TCM) considering "pre-forestalling sickness, forestalling previous illness.

I. Tewari; M. Gasp⁴⁾ illustrated that Artificial Intelligence (AI) innovation is the new typical technology with high impact in industry. As everything is fueled by AI in the existing time, it has adjusted our process of existing. The boundless reception of AI across organizations and companies is serving them in smoothing out their cycles, expanding usefulness, boosting proficiency, and diminishing expenses. The combination of artificial intelligence with human asset the board (HRM) rehearses is changing the manner in which associations select, oversee, and draw in their labor force. Artificial intelligence is empowering machines to settle on choices more precisely than human's dependent on existing informational indexes and standards of conduct. This change has made machines assume control over all the manual work along these lines driving HR experts to take up more essential jobs. It is vital for organizations and experts to see the way this functions and its job in different HRM capacities. This paper surveys crafted by numerous prominent specialists to discover manners by which AI is

getting a change the arena of anthropoid asset the panel. This survey features the vital advantages and secret difficulties of AI when applied to HRM and furthermore delineate its future potential.

Shuang Zhao⁵⁾ describe that the article talked about the grade and situation of anthropoid assets administration business advancement in the foreign dependent on the relative examination. We gathered information from existing writing and unlocked the near examination from different viewpoints: correlation of the extent of the business, correlation of working instrument, correlation of anthropoid investment, examination of trademark methodology and examination of strategy support. Finally, researchers planned a few ideas from three viewpoints.

The impact of the scholarly information examination application in the undertaking of competitor's choice for opportunities is explored. Data investigation in the field of anthropological benefit the panel with expanding unwavering quality of the handled information is proposed. The calculation utilizes AI draws near and genuine standards of human asset the board⁶⁾. S. Archana Bai conveys⁷⁾ that Artificial intelligence (AI) is advancing once again into the standard of corporate modernization, this time at the focus of corporate frameworks which are giving superior hand in a wide choice of ventures, counting machinery, producing, advertising, human strength, monetary supervisions software, hospitality, enjoyment, designing and transactions. Proposed to use the abilities of humans instead of supplant them, the present AI innovation empowers an extraordinary collection of uses that fashion new connotations among personalities, PCs, evidence, and the actual ecosphere. Some AI sanctioned submissions are data broadcasting and salvage, information base mining, item configuration, fabricating, review, formulating, client provision, suspicious positioning, strength booking, and intricate quality the sustenance.

3. The Proposed Smart-HR-System using Artificial Intelligence

The proposed system study has been condescended using the software Python and it was implemented in a company named CITRONINX. After the survey taken before and after the implementation of the software, it was found that there is a huge difference in terms of better employee management¹¹⁾ retention¹²⁾ and employee satisfaction level.¹³⁾ Following section presents the design and implementation details.

During the design of the system various classes¹⁴⁾ were created initially for different classes of employees such as employee class that manages all the employee operations. Other classes are Salary class¹⁵⁾, Leaves class, Experience class, Login class, and Attendance class.

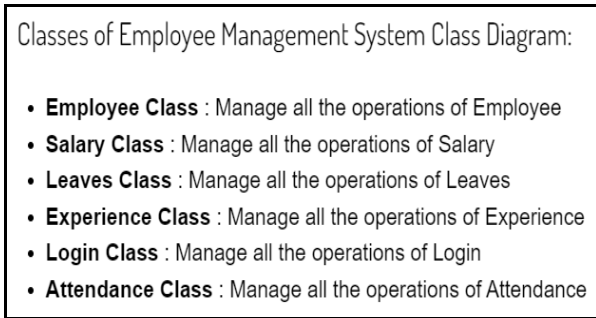


Fig. 1: (a) Classes of the proposed system

Fig.1 (a) depicts different classes of the proposed system and Fig.1 (b) illustrates the DFD (Data Flow Diagram) of the proposed system. It indicates that the main process Online Employee Management¹⁶⁾ System controls other important modules such as Salary, Department, Login, Leave and System user management.

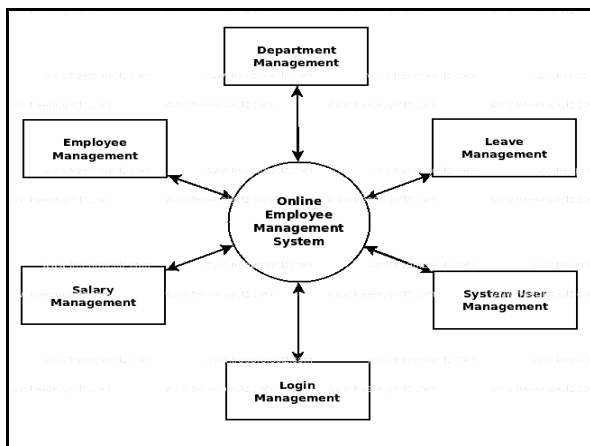


Fig.1 (b) Data flow diagram of the proposed system

Employee satisfaction leads to enhanced employee retention¹⁸⁾ which finally strengthens the Organisation. So it is important to perform systematic data analytics on critical parameters of employee satisfaction such as regular salary enhancement¹⁹⁾, Leave facility, welfare facility, ease of use in digital ERP systems etc²⁰⁾.

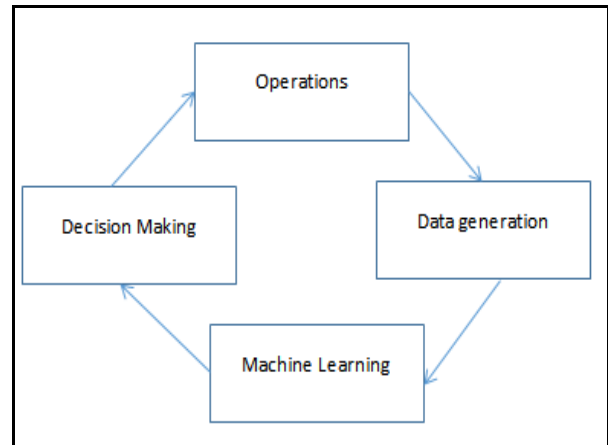


Fig.2(a) Lifecycle of AI-supported HR System

Life cycle of an artificial intelligence based HR system has the important modules such as operations, data generation²¹⁾, machine learning which supports powerful algorithms for different aspects of human resource system, and the Decision Making module²²⁾ which takes input from the greater level administration of the Organization.

Life cycle of the proposed system is given in fig.2(a) and smart HR transactions in fig.2. (b). For the proposed AIB-HRM system, the structure chart is given in fig.3 and there are important activities²³⁾ which are depicted in Fig 4. They include strategic preparation, employment, presentation management, knowledge & progress, progression planning, reimbursement and benefits.

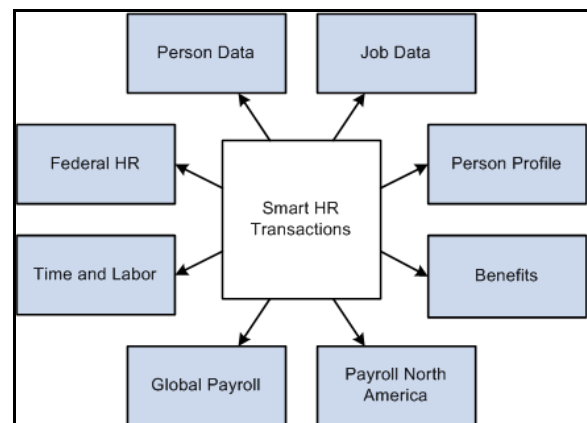


Fig.2 (b) Smart HR transactions

4. The Proposed CORE Modules

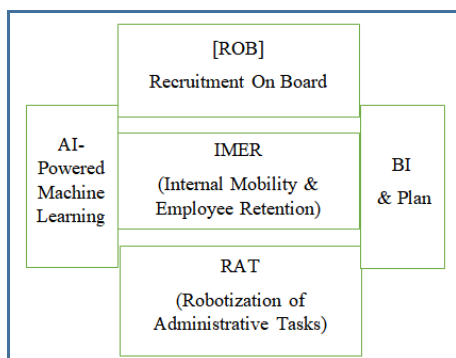


Fig 5. CORE modules of the proposed system

5. Overview of the proposed HRMS Core module

You can organize your staff as your company requires with the help of the designed HRMS, which offers you an effective and adaptable people management system. With the aid of the proposed model: (i) you can maintain data on all of your future and current employees to track their responsibilities and actions from the point at which they apply for a job to the point at which they leave your company. (ii) Keep a record of the workers' deployment information, including their organization, job, position, and grade. (iii) To manage workforce development, maintain information on qualifications, competency profiles, work preferences, and benefits eligibility. (iv) Keep copies of important records, including certificates, permits, and work visas. (v) Manage large-scale change processes to put new information-like employee job data, information about new departments, or information about new working relationships-into practice. There are three core modules in the proposed system AIB-HCM which takes care of ROB [Recruitment on Board], IMER [Internal Mobility & Employee Retention], RAT Robotization of Administrative Tasks. Details explanation of these modules are given as follows.

A). Recruitment and On Boarding [RoB]

While some organizations are now beginning to use AI technology [24] in their selection processes, the vast majority of groups do not. In fact, according to Deloitte's 2019 Global Human Capital Trends research, only 6% of respondents said their organization had top-tier recruitment measures for innovation, while 81% believed its cycle times were average or below average.

B.Internal Mobility and Retention of Employees [IMRE]

We have used this module for HR professionals who can also employ computerized reasoning to help with inside versatility and representative upkeep [25] in

addition to improvements to the enrollment procedure. HR departments can now monitor representative devotion and job fulfillment more precisely than ever before through personalized input overviews and worker acknowledgment frameworks.

C. Administrative Tasks Robotization (RAT)

One of the key benefits of using artificial intelligence in various HR measures is that it is truly equal to using it in other disciplines and businesses: Automating low-value, easily repetitive regulatory tasks offers HR professionals more time to add to crucial hierarchy-level activities. As a result, this gives the HR department the ability to establish itself as a valuable partner within their organizations. Keen advancements can automate cycles like the society of compensations, before screening applicants, planning interviews, and that's just the beginning.

D.Planned Development of Human Resources Management

While it is certain that artificial intelligence will continue to profoundly influence the area of HR executives in the years to come, HR professionals must also be aware of potential challenges. The most well-known concerns that HR executives have primarily relate to how to make AI more user-friendly and secure. Security and protection issues are, in fact, the most common barrier preventing people from using AI at work.

E). Data collection: The research approach adopted for the present exploration conforms to Descriptive Research.

The study involves both primary data collection methods as well as secondary sources. A structured questionnaire with 15 items were used to collect primary data regarding the current problems and associated challenges. Secondary data includes research material printed in research reports and similar document that is accessible in websites, newspaper, surveys, etc.

F). Sampling Method:

Simple random sampling method was being considered for this study. Sample size- A sample of 300 was taken for this study. Data analysis- Graphical visualization for data interpretation was carried out in Google Data Studio using pie-charts. Descriptive research approach was carried out to fulfil research objectives.

a) Managerial Implications

This innovation is quite helpful for the practicing managers to use an Artificial Intelligence based platform and to understand how an employee goes about identifying and determining work satisfaction, as well as the duties, requirements, and relative relevance of these

responsibilities for a certain position. Different types of amenities should be accessible so that the work environment is conducive to employees achieving their life goals.

Employee welfare programmes expand the corporeal and psychological well-being of workforces and produce a safe functioning situation. Families of workers can improve their living conditions by providing housing, treatment, education, and recreation facilities. It allows workers to focus more on their work, resulting in higher productivity. As a result of the aid services, employees are able to maintain a stable workforce.

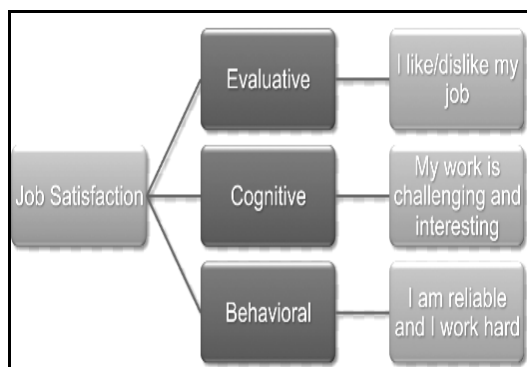


Fig.6 Parameters of Employee job satisfaction

b). Proposed Approach: Study and Implementation

An important element that shapes the company's culture and general mood is the attitude of its employees at work. The days when workers were only resources to achieve objectives are long gone. Today, a worker is a valuable asset, and his happiness directly correlates to the happiness of the business. As a result, collecting data from employee satisfaction surveys is crucial to creating a better workplace.

CONCLUSION

Human resources play a vital role in any organisation; worker happiness facilities are an urgency for this subdivision; if workers are pleased with their happiness services, the establishment's efficiency will grow. Based on an exploration of Citronix's Employee Happiness Conveniences. It is ostensible that the company is committed to marketing all of the available welfare services. employees are pleased with the medical examination and HRA allowance. The company will truly care for all of its employees, as well as contract workers. Finally, the study suggests that the current welfare facilities in the firm are satisfactory to the personnel. This research guidance will be helpful for the practicing managers to understand how an employee goes about identifying and determining work satisfaction, as well as the duties, requirements, and relative relevance of these responsibilities for a certain position. The proposed HR system implements advances HR

techniques using advanced technology such as artificial intelligence to enhance employee satisfaction.

References

- 1) J. Tian, 'The Human Resources Development Applications of Machine Learning in the View of Artificial Intelligence', 2020 IEEE 3rd International Conference on Computer and Communication Engineering Technology (CCET), 39-43, 2020, 978-1-7281-8811-9, 10.1109/CCET50901.2020.9213113
- 2) C. Athukorala; H. Kumarasinghe; K. Dabare; P. Ujithangana; S. Thelijjagoda; P. Liyanage, 'Business Intelligence Assistant for Human Resource Management for IT Companies', 2020 20th International Conference on Advances in ICT for Emerging Regions (ICTer), 220-225, 2020, 978-1-7281-8655-9, 10.1109/ICTer51097.2020.9325471
- 3) F. Gao; K. Deng; C. Hu, 'Construction of TCM Health Management Model for Patients with Convalescence of Coronavirus Disease Based on Artificial Intelligence', 2020 International Conference on Big Data and Informatization Education (ICBDIE), 417-420, 2020, 978-1-7281-5900-3, 10.1109/ICBDIE50010.2020.00104.
- 4) Tewari; M. Pant, 'Artificial Intelligence Reshaping Human Resource Management : A Review', 2020 IEEE International Conference on Advent Trends in Multidisciplinary Research and Innovation (ICATMRI), 1-4, 2020, 978-1-7281-7734-2, 10.1109/ICATMRI51801.2020.9398420
- 5) Shuang Zhao, 'Study on Chinese human resources service industry based on comparing with foreign HRSI', 2011 2nd International Conference on Artificial Intelligence, Management Science and Electronic Commerce (AIMSEC), 1527-1530, 2011, 978-1-4577-0536-6, 10.1109/AIMSEC.2011.6010841.
- 6) A. Y. Gromov; T. A. Petrovskaia; A. A. Suslina; N. I. Khizriyeva; M. A. Stepanov, 'Human resources intelligent selection algorithm with improvement of data validity', 2018 7th Mediterranean Conference on Embedded Computing (MECO), 1-4, 2018, 978-1-5386-5683-9, 10.1109/MECO.2018.8406036
- 7) S. Archana Bai, 'Artificial intelligence technologies in business and engineering', International Conference on Sustainable Energy and Intelligent Systems (SEISCON 2011), 856-859, 2011, 978-9-38043-000-3, 10.1049/cp.2011.0486
- 8) D. Xu; X. Xiao, 'Influence of the Development of VR Technology on Enterprise Human Resource Management in the Era of Artificial Intelligence', IEEE Access, 1-1, 2020, 10.1109/ACCESS.2020.3020622

- 9) Yue Wang; ShengbinYang,'Competency model based on large aircraft designer human resource management',2011 2nd International Conference on Artificial Intelligence, Management Science and Electronic Commerce (AIMSEC),1998-2000,2011,978-1-4577-0536-6,10.1109/AIMSEC.2011.6011190
- 10) Gluck; J. Chen; R. Paul,'Artificial Intelligence Assisted Virtual Reality Warfighter Training System',2020 IEEE International Conference on Artificial Intelligence and Virtual Reality (AIVR),386-389,2020,978-1-7281-7463-1,10.1109/AIVR50618.2020.00080
- 11) Hemalatha; P. B. Kumari; N. Nawaz; V. Gajenderan,'Impact of Artificial Intelligence on Recruitment and Selection of Information Technology Companies',2021 International Conference on Artificial Intelligence and Smart Systems (ICAIS),60-66,2021,978-1-7281-9537-7,10.1109/ICAIS50930.2021.9396036
- 12) S. Zel; E. Kongar,'Transforming Digital Employee Experience with Artificial Intelligence',2020 IEEE / ITU International Conference on Artificial Intelligence for Good (AI4G),176-179,2020,978-1-7281-7031-2,10.1109/AI4G50087.2020.9311088
- 13) Z. Zhu,'Composition of Online Teaching and Academic Ability under the Background of Artificial Intelligence and HTML',2021 5th International Conference on Computing Methodologies and Communication (ICCMC),1467-1470,2021,978-1-6654-0360-3,10.1109/ICCMC51019.2021.9418250
- 14) Z. Cai-Ming; C. Hao-Nan,'Preprocessing Method of Structured Big Data in Human Resource Archives Database',2020 IEEE International Conference on Industrial Application of Artificial Intelligence (IAAI),379-384,2020,978-1-6654-0471-6,10.1109/IAAI51705.2020.9332880
- 15) N. Sahota; M. Ashley,'When Robots Replace Human Managers: Introducing the Quantifiable Workplace',IEEE Engineering Management Review,21-23,2019,,10.1109/EMR.2019.2931654
- 16) Yong Liu; DazhengWang,'On Business Intelligence Information Technology for Human Resource Management Workflow Systems',2011 2nd International Conference on Artificial Intelligence, Management Science and Electronic Commerce (AIMSEC),1252-1254,2011,978-1-4577-0536-6,10.1109/AIMSEC.2011.6010761
- 17) Jie Dong; QinglongLiu,'Human resources management of college teachers on the theoretical basis of all-round development of human beings',2011 2nd International Conference on Artificial Intelligence, Management Science and Electronic Commerce (AIMSEC),1168-1171,2011,978-1-4577-0536-6,10.1109/AIMSEC.2011.6010832
- 18) G. Bhardwaj; S. V. Singh; V. Kumar,'An Empirical Study of Artificial Intelligence and its Impact on Human Resource Functions',2020 International Conference on Computation, Automation and Knowledge Management (ICCAKM),47-51,2020,978-1-7281-0666-3,10.1109/ICCAKM46823.2020.9051544
- 19) Jong-Chen Chen,'Artificial worlds modeling of human resources management through evolutionary learning',1998 IEEE International Conference on Evolutionary Computation Proceedings. IEEE World Congress on Computational Intelligence (Cat. No.98TH8360),45-50,1998,0-7803-4869-9,10.1109/ICEC.1998.699125
- 20) N. Sooraksa,'A Survey of using Computational Intelligence (CI) and Artificial Intelligence (AI) in Human Resource (HR) Analytics',2021 7th International Conference on Engineering, Applied Sciences and Technology (ICEAST),129-132,2021,978-1-6654-4122-3,10.1109/ICEAST52143.2021.9426269
- 21) V. Garg; S. Srivastav; A. Gupta,'Application of Artificial Intelligence for Sustaining Green Human Resource Management',2018 International Conference on Automation and Computational Engineering (ICACE),113-116,2018,978-1-5386-5464-4,10.1109/ICACE.2018.8686988
- 22) P. K. DSouza,'Absolute answerability in the Era of Artificial Intelligence and Machine Learning: A talent management perspective',2019 International Conference on Digitization (ICD),8-13,2019,978-1-7281-3841-1,10.1109/ICD47981.2019.9105675
- 23) P. Tiwari; R. Pandey; V. Garg; A. Singhal,'Application of Artificial Intelligence in Human Resource Management Practices',2021 11th International Conference on Cloud Computing, Data Science & Engineering (Confluence),159-163,2021,978-1-6654-1451-7,10.1109/Confluence51648.2021.9377160
- 24) Z. Cao,'Research on the Intelligent Human Resource Management Information System',2010 International Conference on E-Product E-Service and E-Entertainment,1-4,2010,978-1-4244-7161-4,10.1109/ICEEE.2010.5660205
- 25) N. Yatskiv; S. Yatskiv; A. Vasylyk,'Method of Robotic Process Automation in Software Testing Using Artificial Intelligence',2020 10th International Conference on Advanced Computer Information Technologies (ACIT),501-504,2020,978-1-7281-6760-2,10.1109/ACIT49673.2020.9208806.
- 26) Santisak Kitjanukit, Attitude toward Bioremediation-Related Technology and Relation

- with Company Social Responsibility, Evergreen, Vol 6(3), 240-245 (2019).
<https://doi.org/10.5109/2349300>
- 27) Santus Kumar Deb, Nibir Deb, Showvon Roy, Investigation of Factors Influencing the Choice of Smartphone Banking in Bangladesh, Evergreen, Vol. 6(3), 230-239 (2019).
<https://doi.org/10.5109/2349299>
- 28) Subhrajit Ray, Effect of Control Parameters on Erosion Wear Performance of Glass-Epoxy Composites Filled with Waste Marble Powder, Evergreen, vol.9(1), 23-31 (2022).
<https://doi.org/10.5109/4774213>
- 29) Gde Dharma Nugraha, Dede Kosasih, Evaluation of Computer Engineering Practicum based-on Virtual Reality Application, Evergreen, vol.9(1), 156-162 (2022). <https://doi.org/10.5109/4774233>
- 30) Syaiful Rizal Hamid, Chew Boon Cheong, Alina Shamsuddin, Nor Ratna Masrom, Nur Athirah Mazlan, Sustainable development practices in Services Sector: A case of the Palace Hotel from Malaysia, Evergreen, vol.8(4), 693-705 (2021).
<https://doi.org/10.5109/4742113>.