

# PREFERENCE AND SATISFACTION TOWARDS TWO WHEELERS WITH SPECIAL REFERENCE TO WOMEN CONSUMERS

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**Abstract:** The producers of Automobile products innovated a new thought of designing the two- wheelers in such a way to attract the women. Today most of the women prefer to travel through two-wheelers. A wide variety of two-wheelers of all category light- weighted, medium – weighted and heavy weighted vehicles have been introduced in the market. The objective of the study is to know the preference and satisfaction of women consumers over two-wheelers and the various aspects, which determines the purchase or buying behavior and to know the expectations of women consumers over two-wheelers. The sample size of the study was conducted in Tiruchirappalli city with 75 respondents through Non-Probability Random Sampling Method. The tools and techniques used were simple percentage, chi-square and ANOVA. The obtained result of the study that majority of the women prefer TVS Scooty and most of the respondents prefer two wheelers due to convenient while driving and majority of the respondents have great impact on colour and model prefer the vehicle. New inventions and designs were introduced to meet the requirements of the current day affairs.

**Key words:** Preference of women consumers over Two Wheelers, Buying Behavior, Attitudes & Expectations.

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**Introduction:**

The Indian two-wheeler industry is experiencing a major shift in its shape and structure. The established players in the industry are taking a hard look at their portfolio of products and are in the process of reshuffling them to meet the expectations of customers. The last few years have brought about a great change in the consumer preferences for two-wheelers. The market leaders of yester years are being driven to maintain their leadership position in the forthcoming years. Those who have had a great going in the last few years are fighting hard to retain their new supremacy. The two-wheeler industry is perhaps the most happening place in terms of new models launched, upgraded products and innovative marketing techniques. Today the Indian two-wheeler markets in highly competitive the numerous players who offer anything and everything a consumer demands and that too at affordable price. The Indian two-wheeler industry is dominated by three players, Bajaj, Honda and TVS Suzuki, who account for 80 percent of the total two-wheeler market. The other players including Kinetic motors, LML and others account for the remaining 20 percent of the market. The industry can be divided in to three broad segments: scooters, motorcycles and mopeds. In the scooters segment Bajaj in the market leader, Honda is the market leader in the motor cycles segment and in the segment of mopeds, TVS controls the major chunk of the market. Most Indian players in the two-wheeler industry had been into some kind of strategic alliance, technical collaboration or joint venture with foreign players.

**Statement of Problem:**

Women play a significant role in the domestic and socio-economic life of the society. The prominent role of women in decision-making is due to increasing literacy, self-confidence, the control on independent income, and a more playing significant role in the family. The increase in urbanization, higher disposal incomes, falling interest rates, and poor public transport lead to increase in the volume of two-wheelers. An individual chooses personalized transport, instead of public transport to a desired location in most of the situations. This study reports key findings from an interpretative study of women consumers' preference and satisfaction towards two-wheelers in Tiruchirappalli City.

**Objectives of the Study:**

- To study the preference and satisfaction of women consumers over two-wheelers.
- To study the various aspects, which determines the purchase or buying behavior
- To examine the expectations of women consumers over two-wheelers.

**Review of Literature:**

**M. Arutselvi (2011)**, in her research paper entitled on, "A study on customer satisfaction towards TVS Bikes" in kanchipuram town, has analyzed the performance of SARADAS Auto Agencies for retaining the customers by their authorized sales. The study has employed descriptive research approach and has adopted survey method for data collection. A sample of 130 respondents has been taken for the study. The study has concluded that the sales of Saradas Auto Agencies for TVS two wheelers were good because of the right approach of a group of sincere mechanics.

**Faiz Ahmed Shaikh (2011)** A critical analysis of consumers buying behavior two wheelers (observations pertinent to Ahmed Nagar city, Maharashtra. The main objective of the study focus on identify the most preferred two wheeler manufacturing companies, In two wheeler marketing, relationship with consumers is very important and their cannot be good relationship unless we understand customer preference well. Information was collected from a sample size of 200 respondents. The toll used in the study is just below 80% of the total two wheelers market in India which is dominated by Hero Honda with a market share of 59%. Scooter segment market share is about 18% which is lead again by Honda motorcycle and scooter India Pvt. Ltd., with a market share of 43%.

**Anuj (2011)**, Analyzing the state of competition in India two wheelers industry. The main theme of the study wills customer love to be with two- wheeler. The information on a foresaid factors will help manufacturer determine its manufacturing and marketing strategies for sustaining and growth of the business. The study had found that the automobile industry in India in one of the largest in the world and one of the fastest growing globally. Finally they conclude that report divides two wheelers industry in segments on the basics of price and scooters have been treated as separate segment.

**Duggani Yuvaraju and Durga Rao (2014)** have made a study on, "Customer Satisfaction towards Honda Two Wheelers: A Case Study in Tirupati". The study has aimed to analyze the customer satisfaction of two wheelers. The study has found that 60 per cent of the respondents have come to know Honda Bikes through Advertisement media, 90 per cent of the respondents were completely satisfied with the mileage and performance of the bike, 73 per cent are satisfied with pick-up of the Honda Bike, 56 per cent of the respondents have attracted by the quality of the service. 50 per cent of the respondents are satisfied with the design of the bike, 54 per cent of the respondents have considered the price of the Honda, 60 per cent of the respondents have felt the explanation were "excellent." The study has concluded that there is a significant difference among the preferable factors such as, mileage, pickup, price and design.

**Scope of the Study:**

The scope of the study reveals the preference of women consumers over two wheelers. It confined with special reference to Tiruchirappalli City. The vital purpose of the study has been conducted to identify the consumers evaluate their preferences and find out the factors in which it decides the buying decision, and to analyze the expectation level of two wheelers. The study creates a ground for future research in the similar field and would similar inferences that could be analyzed.

**Sample Size:** In this research work, sample size is 75.

**Sampling Area:** The study was conducted in rural areas of Tiruchirappalli City were only limited population was chosen on Non-Probability Random Sampling Method.

**Methodology:**

Both primary and secondary data were used for the present study. For collecting the first-hand information one hundred respondents were chosen by Non-Probability Random Sampling Method. Secondary data have been collected from Websites, Books and Journals.

**Limitation of the Study:**

The study was restricted to 75 respondents in rural areas of Tiruchirappalli City. The data was obtained through questionnaire and it has its own limitations. The result would be varying according to the individuals as well as time.

**Analytical Tools:**

The following are the analytical tools applied for the analysis of the data collected:

- ✓ Percentage analysis
- ✓ Chi-Square test
- ✓ Analysis of Variance (ANOVA)

**Table No. 1****Demographical Profile of the Respondents**

<b>Variable</b>	<b>Category</b>	<b>No. of Respondents</b>	<b>%</b>
Age	<20 Years	10	13
	21-30 Years	25	33
	31-40 Years	32	43
	>41 Years	08	11
Marital status	Married	59	79
	Unmarried	16	21
Educational Qualification	Illiterate	03	04
	School level	19	25
	Under Graduate	45	60
	Post Graduate	08	11
Occupation	School student	05	07
	College student	15	20
	Working women	34	45
	Housewife	21	28
Income per month	Below 10,000	28	37
	10,001-20,000	33	44
	20,000-30,000	08	11
	Above 30,000	06	08
Size of the Family	Up to two	09	12
	3-4	61	81
	Above 4	05	07

**Source: Primary Data**

From the above table, it is clearly evident that majority of the respondents (i.e.) 43 percent are belong to 31 to 40 years of age group. 79 percent of the respondents are married. Majority of the respondents (i.e) 60 percent educational qualification is under graduate. Nearly half of the respondents (i.e) 45 percent are working women. 44 percent of the respondents' monthly income is between 10001 to 20000 and most of the respondents (i.e) 81 percent family size is between 3 to 4.

**Table No. 2****Product Profile of the Respondents**

<b>Variable</b>	<b>Category</b>	<b>No. of Respondents</b>	<b>%</b>
Preference of two-wheelers	Vespa	08	11
	Pleasure	07	09
	TVS Scooty	27	36
	Dio	19	26
	Fasino	10	13
	Electric bike	04	05
Buying place of Two wheelers	Used Vehicle Consultancy	22	30
	Showroom	43	57
	C2C Platform	10	13
Reasons for preferring the brand	Brand Image	12	16
	After Sale Service	14	19
	Convenient to Drive	26	34
	Better Mileage	23	31
Period of using two wheelers	Less than 2 years	36	48
	2 to 4 years	25	33
	Above 4 years	14	19

**Source: Primary Data**

From the Table No. 2, it is clearly reveals that more than one-third of the respondents are preferred TVS Scooty two-wheeler. 57 percent of the respondents are purchased their vehicle from the showroom. Main reason for preferring the specific brand of two-wheeler is very convenient to drive and it is preferred by 34 percent of the respondents. Nearly half of the respondents (i.e) 48 per cent using the two-wheeler for the period of less than 2 years.

**Table No. 3****Chi-Square Test Relationship between Income and preference of Two-wheelers**

Factor	Calculated Value	Table Value	Degree of Freedom	Remark
Income	23.0201	24.996	15	Significance at 5% Level

**Source: Primary Data**

It is observed that the table that the calculated value of chi – square is less than the table value. Hence the null hypothesis is accepted and it is concluded that there is not significant relationship between income status and preference of two wheelers.

**Table No. 4: ANOVA****Table showing Relationship between mode of payment and preference of Two-wheelers**

Source of Variation	Sum of Squares	Degrees of Freedom	Means Square	F Ratio	5% F limit ( or the Table value)
Columns	664	5	132.8	2.266	5.05
Rows	300	1	300	5.119	6.61
Residual	293	5	58.6		
Total	1257	11			

**Source: Primary Data**

It is observed above the table that the calculated value is less than the table value. Hence the null hypothesis is accepted and it is concluded that there is not significant relationship between mode of payment and preference of two – wheelers.

### **Suggestions**

It is found in the research that engine power is one of the main concerns of the customer. It is suggested to increase the engine power so as to increase the satisfaction of the customer. It is suggested to improve the mileage of the vehicle for increasing the satisfaction level of the users. It is suggested to reduce weight of the vehicle so as to give safety and make convenience to women customer. Suspension of the vehicle can be improved by providing shake absorbers at the front as well as rear. Normally the seats are made narrow at the front and rear and broader at the center. The broader portion of the seats causes discomfort, so the center portion of the seat can be slightly reduced in breadth. Most of the highways are in dilapidated condition. Potholes are seen everywhere. Hence in order to have a safe and comfortable journey shake absorber should be in a strong and fine condition. It is found in the research that facility for charging a cell phone in some vehicles can be provided to help the riders. It is suggested that the level of the ground clearance can be increased in mostly two wheelers.

### **Conclusion**

Customer's expectation and satisfaction are fulfilling by supplying them superior quality product at reasonable price. Customer preference to a large extent depends on the brand. Customers are annoyed of the mileage, resale value, easier to operate greater mobility, cheap spares and loan on installment facilities. Thus all the four companies, namely TVS motors limited, Honda motors company, Hero motors limited and Yamaha had technical collaboration with different Japanese auto giants, enjoyed good export potential, employed excellent quality control technique and overcome the tough time in the market by their innovative ability and efficiency. Keeping pace with the increasing demand two wheelers companies are factoring in the preferences and special needs of women while fine tuning their marketing strategies. All companies will duly satisfy the customer, by offering high quality products and services, which are new and traditional technologies as well as creativity and artistry and continue to be a known, trusted on love brand.



**Reference:**

1. Amemiya, T. (1981). Qualitative response model: A survey. *Journal of Economic Literature*, 19, 1485- 1536.
2. M. Arutselvi (2011), "A study on customer satisfaction towards TVS Bikes", *International Journal of Management Research and Review*, Vol-1, Issue 16, pp. 250-265
3. Badhusha, M. H. N. (2017). Demonetisation: Impact on Indian Economy and Leads to Cashless Banking Activities. *International Journal of Management and Development Studies*, 6(1), 63-70.
4. Badhusha, D. M. (2019). Consumers' Satisfaction Towards Digital Food Ordering in Tiruchirappalli City. *Journal of Composition Theory*, 12(9), 1460-1471.
5. Bailey,R., & Tian, R. G. (2002). Cultural understanding and consumer behavior : A case study of Southern American perception of Indian food.
6. Bitner, M. J. (1990). Evaluating service encounters: The effects of physical surroundings and employee responses. *Journal of Marketing*, 54 (2), 69-82.
7. Bitne, M. J. (1992). Services capes: The impact of physical surroundings on customers and employees. *Journal of Marketing*, 56(2), 57- 71.
8. Burnett, J., & Moriarty, S. (1998). *Introduction to marketing communications: An integrated approach*. Upper Saddle River, NJ: Prentice-Hall.
9. DugganiYuvaraju and DurgaRao (2014), "Customer Satisfaction towards Honda Two wheelers: A Case Study in Tirupati", *Journal of Business and Management*, Vol.16, Issue 5, Vol. I, pp. 65 – 74.
10. Dr. K. Riyazahamed (2019) A Study on Customer Satisfaction towards Net Banking Service with reference to Tiruchirappalli City, *Emperor Journal of Economics and Social Science Research [EJESSR] - ISSN No. 2581-8643 (O) Volume - I Issue - 4 April – 2019, DOI - <http://doi.org/10.35338/EJESSR.2019.1403>*
11. Jagannath, D., Mishra, R., Pal, S., Mishra, N., & Singh, M. K. (2017). Is Internship Influencing Hotel Management Students' Perception about Hospitality Industry?. *International Journal of Economic Research*, 14(9), 391-400.
12. Mishra, R., & Singh, M. K. (2015). Imperatives for Teacher Empowerment in Devising

- Extension Education as Part of the Holistic Curriculum for Hospitality and Tourism Domains: A Conceptual Study in Indian Context. *Journal of Tourism and Hospitality Management*, 3(9-10), 181-191.
13. Mishra, M. R., Kannan, S., & Singh, M. K. (2015). An Integrated Framework for Promoting Eco Initiatives: Role of Educational Institutions as Execution Specialists. *Global Journal of Management and Business Research*, 15(1), 45-50.
  14. Mishra, R., & Pal, K. (2013). Empowering Front Office Professionals with Understanding of Guests' Personality Psychology. *Global Journal of Management and Business Research*, 45-50.
  15. Patidar, M., Kumar, D. A., William, P., Loganathan, G. B., Billah, A. M., & Manikandan, G. (2024). Optimized design and investigation of novel reversible toffoli and peres gates using QCA techniques. *Measurement: Sensors*, 32, 101036.
  16. Kumar, R., Keshamma, E., Kumari, B., Kumar, A., Kumar, V., Janjua, D., & Billah, A. M. (2022). Burn injury management, pathophysiology and its future prospectives. *Journal for Research in Applied Sciences and Biotechnology*, 1(4), 78-89.
  17. Thimmaraju, M. K., Trivedi, R., Hemalatha, G., Thirupathy, B., & Billah, A. M. (2023). Microfluidic revolution and its impact on pharmaceutical materials: A review. *Materials Today: Proceedings*.
  18. Billah, A. M., & Venkatesan, P. (2017). A self-limited survey on community pharmacies in India, the services offered, facilities available to make ease of compliance for the medication prescribed and over the counter medication in view of pharmacists. *Journal of Pharmaceutical Sciences and Research*, 9(3), 314.
  19. Islam, F., Dehbia, Z., Zehravi, M., Das, R., Sivakumar, M., Krishnan, K., ... & Emran, T. B. (2023). Indole alkaloids from marine resources: Understandings from therapeutic point of view to treat cancers. *Chemico-Biological Interactions*, 110682.
  20. Taqui, M., Swamivelmanickam, M., & Billah, M. A. (2021). Adverse drug reactions associated with drugs inducing osteoporosis. *National Journal of Physiology, Pharmacy and Pharmacology*, 11(4), 356-359.
  21. Saravanakumar, V., Suma, K. G., Sakthivel, M., Kannan, K. S., & Kavitha, M. (2018).

- Segmentation of hyperspectral satellite image based on classical clustering method. *Int J Pure Appl Math*, 118(9), 813-820.
22. Kanna, D. K., Devabalan, D. P., Hariharasitaraman, S., & Deepa, P. (2018). Some Insights on Grid Computing-A Study Perspective. *International Journal of Pure and Applied Mathematics*, 118(8), 47-50.
23. Padmanaban, K. (2021). A Novel Groundwater Resource Forecasting Technique for Cultivation Utilizing Wireless Sensor Network (WSN) and Machine Learning (ML) Model. *Turkish Journal of Computer and Mathematics Education (TURCOMAT)*, 12(2), 2186-2192.
24. Sakthivela, M., Balakrishnab, N., Kannanc, K. S., & Devabaland, P. (2021). An Analysis of Load Balancing Algorithm Using Software-Defined Network. *Turkish Journal of Computer and Mathematics Education Vol*, 12(9), 578-586.
25. Madhan, E. S., Kannan, K. S., Rani, P. S., Rani, J. V., & Anguraj, D. K. (2021). A distributed submerged object detection and classification enhancement with deep learning. *Distrib. Parallel Databases*, 1-17.
26. G. S. P. Ghantasala *et al.*, "Tech-Enabled Banking Revolt:The Transformational Era of IT in the Financial Sector," *2023 Seventh International Conference on Image Information Processing (ICIIP)*, Solan, India, 2023, pp. 133-136, doi: 10.1109/ICIIP61524.2023.10537647.
27. Organizational Commitment Of Employee A Rising Risk In The Educational Sector. (2023). *Boletin De Literatura Oral - The Literary Journal*, 10(1), 2496-2505. <https://www.boletindeliteraturaoral.com/index.php/bdlo/article/view/521>
28. Banu, S. R., Banu, S. B., Shaik Chandini, D. V., Jyothi, M. K., & Nusari, M. S. (2022). Assessment of research skills in undergraduates students. *Journal of Positive School Psychology*, 6938-6948.
29. S. B. Banu, S. W. Akhtar, S. Arshad, S. R. Banu, S. Chandini and G. P. Ghantasala, "High Heels Are No More an Accessory of Fashion for Women- A Study Unrevealing the Health Effects of Wearing High Heels," *2024 10th International Conference on Communication and Signal Processing (ICCSP)*, Melmaruvathur, India, 2024, pp. 406-410, doi: 10.1109/ICCSP60870.2024.10543799.
30. Banu, D.R., Gongada, T.N., Santosh, K., Chowdhary, H., Sabareesh, R., & Muthuperumal, S. (2024). Financial Fraud Detection Using Hybrid Convolutional and Recurrent Neural

- Networks: An Analysis of Unstructured Data in Banking. *2024 10th International Conference on Communication and Signal Processing (ICCSP)*, 1027-1031.
31. Banu, S. R., Banu, S. B., & Chandini, S. (2016). DESIRED COMPETENCIES NEW WORK METHODS, PROCEDURES OR MANUALS JOB ANALYSIS IS USED FOR VARIOUS HR FUNCTIONS.
  32. Banu, S. B., Banu, S. R., & Chandini, S. (2018). To Study effectiveness of cervical mobilization (SNAGS) compared with isometric exercises on increasing ROM, reducing pain and disability in patients with Mechanical Neck Pain. *International Journal of Research in Social Sciences*, 8(8), 1.
  33. Chandini, S., & Nusari, M. S. (2020). Green Concrete—A Low Cost and Sustainable Solution for a Better Environment. *Indian Journal of Economics and Business*, 19(2).
  34. Chandini, S., & Nusari, M. S. (2021). Experimental investigation on compressive strength of high strength concrete using fly ash and silica fume. *Webology (ISSN: 1735-188X)*, 18(6).
  35. Vemuri, V. P., Asadullah, K. A., Banu, S. B., Banu, S. R., & Shelke, C. (2023). An Investigation of Big Data to transform dynamic Management Decision-Making. *Journal of Informatics Education and Research*, 3(2).
  36. Venkata, M. D., Donda, P., Madhavi, N. B., Singh, P. P., Pazhani, A. A. J., & Banu, S. R. (2024). Personalized recognition system in online shopping by using deep learning. *EAI Endorsed Transactions on Internet of Things*, 10.
  37. Kanulla, L. K., Gokulkumari, G., Krishna, M. V., & Rajamani, S. K. (2023, February). IoT Based Smart Medical Data Security System. In *International Conference on Intelligent Computing and Networking* (pp. 131-142). Singapore: Springer Nature Singapore.
  38. Prasad, G. N. R., Kanulla, L. K., Ijjagiri, V., & Mary, S. S. C. (2022, December). Implementation and Health Monitoring System of Vehicle by using IoT and Cloud Computing. In *2022 6th International Conference on Electronics, Communication and Aerospace Technology* (pp. 518-521). IEEE.
  39. Chidipothu, V. K., kumar Kanulla, L., Pandey, C. K., Davuluri, S. K., Tiwari, M., & Singh, D. P. (2023, September). Design and Implementation of Block Chain with Cybersecurity Scheme for Fog Based Internet of Things. In *2023 6th International Conference on Contemporary Computing and Informatics (IC3I)* (Vol. 6, pp. 1409-1415). IEEE.
  40. Jakka, G., Kanulla, N. S. L. K., & Oni, O. (2022). Analysing The Need Of Big Data Owners To Regularly Update Security Measures. *Journal of Pharmaceutical Negative Results*, 8417-8425.
  41. Kanulla, N. S. L. K. (2021). *A Qualitative Examination of SAP Enterprise Resource Planning System in Pharmaceutical Distribution Companies* (Doctoral dissertation, University of the Cumberlands).
  42. Pande, S. D., & Khamparia, A. (Eds.). (2024). *Networks Attack Detection on 5G Networks Using*

*Data Mining Techniques*. CRC Press.

43. Davuluri, S. K., Byeon, H., Keshta, I., & Surbakti, H. (2024). Spatial federated learning and blockchain-based 5G communication model for hiding confidential information. In *Networks Attack Detection on 5G Networks using Data Mining Techniques* (pp. 40-63). CRC Press.
44. Jawarneh, M., Jayakrishna, M., Davuluri, S. K., Ramanan, S. V., Singh, P. P., & Joseph, J. A. (2023, February). Energy Efficient Lightweight Scheme to Identify Selective Forwarding Attack on Wireless Sensor Networks. In *International Conference on Intelligent Computing and Networking* (pp. 425-436). Singapore: Springer Nature Singapore.
45. Yadav, A. P., Davuluri, S. K., Charan, P., Keshta, I., Gavilán, J. C. O., & Dhiman, G. (2023, February). Probabilistic scheme for intelligent jammer localization for wireless sensor networks. In *International conference on intelligent computing and networking* (pp. 453-463). Singapore: Springer Nature Singapore.
46. Davuluri, S. K., Alvi, S. A. M., Aeri, M., Agarwal, A., Serajuddin, M., & Hasan, Z. (2023, April). A Security Model for Perceptive 5G-Powered BC IoT Associated Deep Learning. In *2023 International Conference on Inventive Computation Technologies (ICICT)* (pp. 118-125). IEEE.
47. Davuluri, S. K., Srivastava, D., Aeri, M., Arora, M., Keshta, I., & Rivera, R. (2023, April). Support vector machine based multi-class classification for oriented instance selection. In *2023 International Conference on Inventive Computation Technologies (ICICT)* (pp. 112-117). IEEE.
48. SenthamilSelvan, R., Wahidabanu, R. S. D., & Karthik, B. (2022). Intersection collision avoidance in dedicated short-range communication using vehicle ad hoc network. *Concurrency and Computation: Practice and Experience*, 34(13), e5856.
49. SenthamilSelvan, R. (2017). Analysis Of EDFC And ADFC Algorithms For Secure Communication In VANET. *JARDCS*, 9(18), 1171-1187.
50. SenthamilSelvan, R. (2018). Analysis of Spawn Protocol and EDFC Algorithm for Secure Communication in VANET. *IJPAM*, 118(20), 1961-1973.
51. Varasree, B., Kavithamani, V., Chandrakanth, P., & Padmapriya, R. (2024). Wastewater recycling and groundwater sustainability through self-organizing map and style based generative adversarial networks. *Groundwater for Sustainable Development*, 25, 101092.
52. Vedavathi, T., Karthick, R., Selvan, R. S., & Meenalochini, P. Data Communication and Networking Concepts in User Datagram Protocol (UDP).
53. Ramgopal, N. C., Gantela, P., Rajagopal, R., Thankam, T., & SenthamilSelvan, R. (2022, December). Automatic Liver Cancer Detection in Abdominal Liver Images Using Soft Optimization Techniques. In *2022 International Conference on Knowledge Engineering and Communication Systems (ICKES)* (pp. 1-5). IEEE.
54. SenthamilSelvan, R., Mahalakshmi, V., Vijayaragavan, S. P., & Arulselvi, S. (2021, June). A novel watchdog timer for real-time intensive applications. In *Proceedings of the First International*

*Conference on Computing, Communication and Control System, I3CAC 2021, 7-8 June 2021, Bharath University, Chennai, India.*

55. Krishnamoorthy, R., Kaliyamurthie, K. P., Ahamed, B. S., Harathi, N., & Selvan, R. S. (2023, November). Multi Objective Evaluator Model Development for Analyze the Customer Behavior. In *2023 3rd International Conference on Advancement in Electronics & Communication Engineering (AECE)* (pp. 640-645). IEEE.
56. Gantela, P., Ilankumaran, S., Arunachalam, M., Selvaprasanth, P., & SenthamilSelvan, R. (2022, October). Analysis of Alzheimer disease with K means algorithm and PSO segmentation. In *2022 IEEE 2nd Mysore Sub Section International Conference (MysuruCon)* (pp. 1-6). IEEE.
57. Selvan, R. S., Wahidabanu, R. S. D., Karthick, B., Sriram, M., & Karthick, R. (2020). Development of Secure Transport System Using VANET. *TEM (H-Index)*, 82.