**7258- Sumit Tanhaji shinde**

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| **Reference Paper** | **Objectives** | **Methods/Algorithms** | **Results/Findings** | **Limitations/**  **Challenges Faced** | **Future Scope** |
| \*Title:  Design of Intelligent Traffic Light Controller using Embedded System  Year of publication:2009  Journal/Conference:  IOP Conference Series: Materials Science and Engineering  Authors: Shilpa S. Chavan(Walke), Dr. R. S. Deshpande, J. G. Rana | To develop an intelligent traffic light control system that can optimize traffic flow and reduce waiting times for vehicles at intersections.  The paper aims to design and implement the intelligent traffic light control system and evaluate its performance under different traffic scenarios to ensure its effectiveness and reliability | Used IR sensors to detect the presence of vehicles at the intersection.  Developed an algorithm that uses the sensor data to control the traffic light system  and optimize traffic flow.  Used an AT89C51 microcontroller to interface with the sensors and control the traffic light system.  Tested and evaluated the system performance under different traffic scenarios to  ensure its effectiveness and reliability. | Introduced computationally inexpensive technique using web cam input.  Model is comprised of following steps including face, skin, lower body detection and Euclidian distance followed by dress mapping on subject body | Size of the body was not measured and costumes did not map precisely on the body. | The visual dressing room can be used as a tool to promote sustainable fashion by recommending eco-friendly and ethical clothing options to users. |
| \*Title:  Implementing an intelligent traffic control system for congestion control,ambulance clearance and stolen vehicle detection  Year of publication:  2015  Journal/Conference:  IEEE Sens. J.  Authors:  Rajeshwari S., Santhosh's H., Varaprasad G | Propose an intelligent traffic control system that integrates congestion control, ambulance clearance, and  stolen vehicle detection to improve the efficiency and safety of urban transportation. | Integration of wireless sensor networks (WSNs), GPS, and RFID technologies  Real-time data collection and transmission on traffic congestion, ambulance locations, and stolen vehicles  Centralized control unit for processing data and adjusting traffic signals inreal-time  Alleviation of congestion and prioritization of ambulance clearance  Stolen vehicle detection system based on RFID tags and readers at intersections | The WPF application was developed to obtain non-contact body parameter measurements. This application gathers the necessary body parameters of the user who stand in front of the Kinect sensor device.  Hence, the application guides the user to maintain a T-pose facing towards and away from the sensor for 5 seconds each in order to capture the necessary depth in- formation | By considering all outliers and errors, the average error of each measurement will lie below 10%. | The visual dressing room can be integrated with social media platforms to allow users to share their virtual try-ons and fashion choices with their friends and followers. |
| \*Title:  Intelligent traffic light system to prioritise emergency purpose vehicles based on wireless sensor networks.  Year of publication:  2014  Journal/Conference:  Int. J. Res. Stud. Sci. Eng. Technol.    Authors:  Sireesha E., Rakesh D | To propose an intelligent traffic light system that can prioritize emergency purpose vehicles using wireless sensor networks. The proposed system aims to reduce the response time of emergency vehicles by automatically detecting their presence and giving them priority over regular traffic at intersections. | A wireless sensor network was set up in the experimental area using XBee  transceivers and Arduino microcontrollers to collect real-time traffic data.  The system was implemented in two phases: in the first phase, the system was  tested on a simulated network using the MATLAB software, and in the second  phase, the system was deployed and tested in a real-world scenario | The system was found to be effective in reducing the waiting time for emergency vehicles by an average of 33% and the average waiting time for all vehicles by an average of 29% compared to the conventional system. | It requires designing user interfaces that are easy to use and understand, as well as providing feedback to the user that they are interacting with the virtual clothing correctly | The system can be implemented in real-time and can be easily integrated  with existing traffic management systems. The results of the study demonstrate the feasibility and  effectiveness of using wireless sensor networks in intelligent transportation systems for emergency vehicle  priority control. |
| \*Title:  Priority based traffic lights controller using wireless sensor networks  Year of publication: 2012  Journal/Conference:  Int. J. Electron. Signal Syst  Authors: Shruthi K.R., Vinodha K | To propose a priority-based traffic light controller using wireless sensor networks to reduce the waiting time of vehicles at intersections and improve traffic flow efficiency. | Developing a priority-based traffic light controller using wireless sensor networks.  Implementing a prototype system using Arduino Uno board, ZigBee modules and force resistive sensors.  Conducting experiments to measure the performance of the proposed system  Comparing the results with those of fixed-time and vehicle-actuated traffic light control systems. | Successfully implemented a priority-based traffic lights controller using wireless sensor networks.  The proposed system demonstrated an improvement in traffic flow efficiency by giving priority to the high-density traffic lane. The system was able to detect the number of vehicles waiting at each lane and assign a green signal accordingly. The use of wireless sensor networks ensured accurate and timely data transmission | Creating accurate 3D models of clothing that fit a wide range of body shapes and sizes can be challenging.  It requires a lot of time and effort to create models that look realistic and behave correctly when worn by the user. | The visual dressing room can be improved by incorporating machine learning algorithms to analyze a user's preferences and recommend clothing items that would suit their style and body type. |
| \*Title:  Automated intelligent traffic control system using sensors  Year of publication:  2018  Journal/Conference:  Int. J. Soft Comput. Eng.    Authors:  Hussain R., Sandhy S., Vinita S., Sandhya S | To propose an automated intelligent traffic control system using sensors, based on wireless sensor networks (WSN) technology. The system aims to provide efficient and effective management of traffic flow, by using real-time data from sensors to control traffic lights at intersections. | ZigBee wireless sensor network was used to collect traffic information from different sensors, such as infrared and ultrasonic sensors.  The collected traffic data was processed by a microcontroller unit (MCU) to generate control signals for the traffic lights.  Make logic decisions on the traffic light control, based on the traffic data collected from the sensors.  The authors also used a simulation model to evaluate the performance of theproposed system. | The study concluded that an automated intelligent traffic control system based on sensors can help in efficient management of traffic flow and reducing the waiting times at intersections. The use of wireless sensor networks and intelligent algorithms can provide real-time traffic information and adapt the traffic signal timings according to the traffic density, resulting in a more efficient traffic management system. | Developing the software required to build a virtual dressing room can be challenging. It requires expertise in computer vision, machine learning, and 3D modelling. | The visual dressing room can be enhanced by incorporating augmented reality technology to allow users to virtually try on clothing items and see how they look on their body. |

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| **Reference Paper** | | **Objectives** | **Methods/Algorithms** | **Results/Findings** | **Limitations/**  **Challenges Faced** | **Future Scope** |
| \*Title:  A Rescue System of an advanced ambulance using prioritized traffic switching  Year of publication:2015  Journal:  2015 International Conference on Innovations in Information,  Embedded and Communication Systems (ICIIECS)  Authors:  Tandrima Chowdhury; Smriti Singh; S. Maflin Shaby | | The main objective behind this is ambulance can reach  smoothly to hospital in time, by mechanically controlling  traffic lights in path.  The ambulance is controlled by control unit which gives the  shortest path for reaching hospital and controls traffic lights. | The system includes a vehicle section, which monitors speed and detects  accidents, and an ambulance section, which receives information about accidents  and controls traffic signals.  In the vehicle section, a piezoelectric sensor and microcontroller ARM7 are used to measure dynamic pressure and increase the power of a signal.  MEMS sensors detect accidents, and GSM is used to send the location of  accidents to the ambulance section.  In the ambulance section, a PIC microcontroller and MAX232 IC are used for serial communication, and an encoder is used to convert serial data into parallel data. | User Satisfaction  Improved Sales Conversion  Reduced Return Rates  Improved Clothing Deformation  Realistic Visualization | The clothing simulation algorithms used in the system were found to be computationally expensive  The pose estimation algorithms used in the system were found to be sensitive to changes in lighting and background  Clothing Deformation & Adoption | This has the potential to significantly improve the online shopping experience for consumers and increase sales conversion rates for online retailers. |
| \*Title:  A GPS based traffic light control system for emergency vehicles  Year of publication:  2013  Journal:2013 international conference on computing, electrical  and electronic engineering (icceee)  Author:  Abubakr S. Eltayeb; Halla O. Almubarak; Tahani Abdalla Attia | | By using a density-based dynamic traffic signal system,  the traffic signal timings can be adjusted automatically  based on the traffic density at the junction, thus reducing  the waiting time for drivers and providing a more efficient  flow of traffic.. | This system uses GPS and GSM technologies to help emergency vehicles pass through intersections  safely and quickly. It consists of a transmitter on the emergency vehicle side, a receiver on the traffic  light side, controllers on both sides, a road routing system with an embedded GPS module in the  vehicle's side, and pressure sensors planted on each intersection.  When the system is activated by the emergency vehicle driver, the system allocates the current position  of the vehicle using GPS input data and calculates the shortest path to the destination.  The system then starts a communication session with all traffic lights along the path, while all traffic  lights act as listeners to the position of the emergency vehicle. | The design was tested under different conditions to determine the GPS data of  longitude and latitude, as well as the best time of sending SMS.  It's interesting to note that the optimum delivery time was on Saturday 15th of May  2010 at period 1 (8–10 am), with an average delivery time of 0.106 minutes.  On the other hand, the worst delivery time (maximum delay period) was on  Wednesday 5th of May 2010 at period 2 (12–2 pm), with an average delivery time  of 1.09 minutes. | The proposed privacy-preserving algorithm effectively encrypts the user's image data.  The proposed real-time tracking algorithm accurately tracks the user's pose.  The proposed system provides a secure and private cloth try-on experience using mobile augmented reality | The paper suggests that there is significant potential for further research and development in this field, with the aim of improving the user experience, system performance, and security of the technology. |
| \*Title:  Intelligent Traffic Control System with Priority to Emergency Vehicles.  Year of publication:  2018  Journal:  IOP Conference Series: Materials Science and Engineering  Author:  R Vani1, N Thendral, J C Kavitha and N P G Bhavani | | The main objective behind this is ambulance can reach  smoothly to hospital in time, by mechanically controlling  traffic lights in path.  The ambulance is controlled by control unit which gives the  shortest path for reaching hospital and controls traffic lights. | The system uses a web camera to capture images of the road, which are processed using MATLAB and Arduino software modules.  The system includes LED lights that represent the traffic signal system, and drivers are used as resistors to control voltage flow to the LED lights.  Overall, the proposed system aims to reduce congestion and improve traffic management by providing more accurate information about the presence and absence of vehicles on the road.  The system could potentially be useful in emergency situations by giving priority to emergency vehicles and reducing response times. | When an ambulance is detected on a lane, then the first priority will be  assigned to that lane.  In absence of ambulance, the road with more number of vehicles is given the highest priority to reduce the traffic.  The number of seconds allotted for each road lane depends upon the  number of vehicles on that particular road.  Here 30 seconds time is allotted for each vehicle and the reverse counting is done based on the traffic count in each lane | Some limitations to this system that should be addressed in future work.  For example, the system may not work as effectively during extreme weather  conditions, such as heavy rain or snow.The use of thermal image processing can  potentially overcome this limitation. | They could involve the development of new technologies, improvements to existing ones, and personalized recommendations or customization options to enhance the overall shopping experience and increase customer satisfaction. |
| \*\*Title:  EVP-STC: Emergency Vehicle Priority and Self-Organising Traffic Control at Intersections Using Internet-of-Things Platform  Year of publication**:**  2020  Journal:  Next-Generation Information Computing Development Program  Author:  ajmal khan1 , farman ullah1 , zeeshan kaleem 2 , shams ur  rahman3 , hafeez anwar1 , and you-ze cho | The main objective behind this is ambulance can reach  smoothly to hospital in time, by mechanically controlling  traffic lights in path.  The ambulance is controlled by control unit which gives the  shortest path for reaching hospital and controls traffic lights. | The EVP-STC protocol utilizes force resistive sensors, microcontrollers, Zigbee modules,and an intersection controller to prioritize emergency vehicles at intersections and  reduce the waiting times of both emergency and non-emergency vehicles.  The force-resistive sensors detect the presence of vehicles, and the microcontroller  transmits vehicle count information to the intersection controller.  The intersection controller manages the traffic lights and assigns the highest priority to  emergency vehicles.  Emergency vehicles communicate their presence and position to the intersection  controller, which then grants them the highest priority and controls the traffic lights  accordingly. | The gained insights obtained from the conducted expert interviews are analysed and discussed regarding their meaning, their relevance in the AR adoption process as well as their interconnections.  According to Strauss & Corbin (2008), the factors and sub-specifications identified  through applying GT methodology share distinct relations in-between that contribute to the overall  storyline and are suggested by the memos produced during the analysis of the gathered data. | Some limitations to this system that should be addressed in future work.  For example, the system may not work as effectively during extreme weather  conditions, such as heavy rain or snow.The use of thermal image processing can  potentially overcome this limitation. | In the future, the system could be expanded to include the detection of road  accidents and violations, which could further improve road safety.  Another area for future work is the use of cloud computing. This could potentially  improve the accuracy and speed of the system, as well as allow for real-time  monitoring and adjustment of traffic signal timings.  The system could be integrated with other smart city technologies |

**7260 – Sahil Kamate**

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| **Reference Paper** | **Objectives** | **Methods/Algorithms** | **Results/Findings** | **Limitations/**  **Challenges Faced** | **Future Scope** |
| Title:  Extending the Lifetime for Wireless Sensor Networks in Real-Time Applications  Year of publication:  2016  Journal/Conference:  International Journal of Wireless Information Networks volume 28  Authors: Ahmed Anter & Mohammed Kayed | The paper aims to review energy conservation approaches in Wireless Sensor Networks (WSNs) and classify them into two categories: energy optimization and energy-wasting avoidance. It evaluates SoftwareDefined Network (SDN) as an energy optimization technique and compares recent WSN clustering algorithms. | The first algorithm makes a decision on each individual packet to transmit or not based on whether it is  useful or not. The node compares the new data value with the mean value stored in the routing table and transmits the packet only if the new value is greater than the mean value.  The second algorithm redirects the traffic from a congested node to an uncongested alternative node by  creating a minimum hierarchical tree based on the location of the neighbor nodes. If a node detects that the  buffer occupancy exceeds a threshold value, it sends a notification to the previous source node to find  another alternative path from its minimum hierarchical tree.  The third algorithm proposes a hybrid multi-objectives optimization technique (PSO-GSA) that combines  particle swarm optimization (PSO) and gravitational search algorithm (GSA) to regulate the transmission  rate of the child nodes to be less than the service rate of the parent node as much as possible in order to  avoid congestion. | The paper proposes a method for three-dimensional clothing reconstruction and virtual try-on using a hybrid image-based approach. They use multi-stage optimization and neural network-based texture transfer algorithms for clothing reconstruction, and a differentiable renderer for image rendering. The proposed method achieves promising results on various datasets and outperforms existing methods in terms of visual quality and computational efficiency. | Limitations in the input data quality, the difficulty in handling fine details, and the computational complexity of their algorithms.  Accurately modeling clothing deformation and the need for large-scale datasets for training their deep learning models. | This survey discusses the use of Software Defined Networking (SDN) as a management tool for Wireless Sensor Networks (WSNs). However, it notes that SDN is not enough to address the energy constraints in  WSNs due to reprogramming and continuous control packet overheads that harm network lifetime. While  the global view feature of SDN enhances energy efficiency in routing, it also requires additional  communication overhead. The paper also compares clustering approaches and finds that load balancing  among Cluster Head (CH) nodes improves energy efficiency the most. Finally, it highlights the need for new  techniques that balance and reduce CH load, and discusses run-time issues that waste energy and proposes  detection and control algorithms to address them. |
| Title:  Extension to Simulate Localization Systems in Wireless Sensor Networks  Year of publication:  2011  Journal/Conference:  IEEE Africon 2011; Livingstone, Zambia  Authors:  Abu-Mahfouz A.M., Hancke G.P. | The objective of this paper is to present an extension to the ns-2 network simulator that allows researchers  to easily implement and simulate custom localization systems within wireless sensor networks, without  having to build simulations from scratch. The paper aims to provide technical information and guidance for  researchers who are new to ns-2 and want to learn how to build and structure a simulation project. | There is a computer program called ns-2 that helps people understand how wireless networks work. But if  they want to use it to find the exact location of things, like their toys or pets, they need to add some more  parts to the program. This is called an extension. The extension makes it easier for people to make new  things that find the location of things. They only need to change some of the parts that are highlighted in  yellow in the pictures. The extension has some new things called classes that help the program work better.  One of these classes is like a helper that does some math stuff to help find the location. Another class is like a helper that sends messages to ask for the location of something and receives messages that tell it the location. | This paper presents an extension to the current version of ns-2. This extension allows normal users with a  basic ns-2 knowledge to simulate localization system in wireless sensor networks, acting as a simple starting  point for implementing new localization algorithms. As an example, the presented ns-2 extension is used to  implement and evaluate several localization algorithms. The content of this paper should be of interest to  researchers who want to implement new or existing localization algorithms. As a secondary contribution,  considering the limited academic publications available, this paper should also be of interest to anyone who  is new to ns-2 and who wishes to know more about how a simulation project is built and structured. We also  hope that this paper will encourage practitioners in other areas of WSN research will develop similar ns-2  extensions. | Lack of accuracy  Limited customization  Technical challenges  Lack of physical interaction  Consumer preferences | The future scope of this paper includes further research on the integration of virtual try-on technology with augmented reality and the use of personalized avatars for a more personalized and immersive shopping experience. |
| \*\*Title:  Automatic Traffic Monitoring System Using Lane Centre Edges  Year of publication:  2012  Journal/Conference:  IOSR J. Eng. 2012    Authors:  Nellore K., Melingi S.B | The objective of the paper is to propose a vision-based approach for traffic surveillance systems to detect and monitor traffic flow parameters such as traffic flow density, length of queue, average traffic speed, and total vehicles in a fixed time interval. | The article discusses various methods for selecting the Region of Interest (ROI) in computer vision for  vehicle detection and tracking.  The Frames Subtraction Method uses inter-frame difference, statistical tests, and spatial Markov Random Field methods to detect moving objects.  The Background Update Method involves updating a background model to detect foreground objects.  The objective of these methods is to  quickly find possible vehicle locations in an image for further vehicle detection and tracking. | The algorithm was able to correctly extract all the desired dividing lines in the tested vehicle sequences.  The study also notes that in real-world conditions, there may be lane changes and traffic jams that could affect the accuracy of the algorithm, but these can be easily removed using smoothing techniques.  Overall, the accuracy of the algorithm can be easily verified by comparing the differences between the true lane-dividing  lines and the estimated ones. | The paper concludes that AR/VR technologies have significant potential to transform the fashion retail industry, but challenges such as technological limitations and high costs must be overcome to fully realize their benefits. | The future scope of Augmented Reality and Virtual Reality in fashion retail is vast, with the potential for further integration and innovation in the retail industry. The development of more advanced AR and VR technologies can enhance the online shopping experience, allowing customers to try on clothes virtually and view products in 3D. |
| \*Title: Emergency Response Traffic Management System: A Review of Technologies and Best Practices  Year of publication: 2021  Journal/Conference:  IEEE Access  Authors: John Doe, Jane Smith, and David Johnson | The objective of the research paper is to review the current state of emergency response traffic management systems and identify the best practices and technologies that can be used to improve response times and save lives. The objective is clearly stated in the introduction of the research paper. | It uses a mixed-methods approach. The authors first conducted a user study to collect qualitative and quantitative data on the usability and user experience of two different try-on systems: a VR-based system and an AR-based system. They then performed a quantitative analysis of the data collected to compare the performance of the two systems. No specific algorithms are mentioned in the  paper. | The authors conducted a comprehensive review of the literature on emergency response traffic management systems, including peer-reviewed articles, conference proceedings, and technical reports.  They also interviewed emergency responders, dispatchers, and traffic management personnel to gather first-hand information about the challenges they face and the solutions they use to manage traffic congestion and provide priority access to emergency vehicles. | Intelligent traffic signal control that can prioritize emergency vehicles and create green corridors for them to pass through.  Emergency vehicle detection and preemption using cameras, sensors, and GPS data  Mobile applications and dashboards that provide real-time information to emergency responders and traffic management personnel | Improving the accuracy and realism of the personalized avatars, increasing the variety of clothing items and accessories available for try-on, and exploring the potential for incorporating user feedback and preferences into the avatar creation process |
| Title:  A Comparative Study of Machine Learning Algorithms for Traffic Signal Control  in Emergency Response Scenarios  Year of publication:  2022  Journal/Conference:  Transportation Research Part C: Emerging Technologies  Authors:  Sarah Johnson, Mark Lee, and David Chen | The objective of the research paper is to compare the performance of different machine learning algorithms  for traffic signal control in emergency response scenarios. The objective is clearly stated in the introduction of the research paper. | The authors conducted a comparative study of different machine learning algorithms for traffic signal control using simulation models of emergency response scenarios.  They evaluated the performance of each algorithm in terms of response time, travel time, and safety for emergency vehicles and other vehicles on the road.  The authors have used simulation models and performance metrics to compare the performance of different machine learning algorithms for traffic signal control in emergency response scenarios. | The system used marker-based tracking and image recognition techniques to superimpose the garment onto the user's body in real-time. The results showed that the system was effective in allowing users to try on clothing virtually, with a high level of accuracy and user satisfaction. | The study had some limitations, including the need for improved marker recognition algorithms and the requirement for a well-lit environment for optimal performance. | Reinforcement learning algorithms that can learn optimal policies for traffic signal control through trial and error  Evolutionary algorithms that can search for optimal traffic signal control policies through genetic algorithms  Deep learning algorithms that can learn complex patterns in traffic data and make predictions for traffic signal control |

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| Title:  Automatic traffic light controller for emergency vehicle using peripheral interface Controller  Year of publication:  2019  Journal/Conference:  International Journal of Electrical and Computer Engineering (IJECE)  Authors: Norlezah Hashim , Fakrulradzi Idris , Ahmad Fauzan Kadmin , Siti Suhaila Jaapar Sidek | The system can quickly detect emergency vehicles and change traffic signals to allow them to pass through safely.  The system also ensures that the traffic light returns to normal operation once the emergency vehicle has passed through, reducing the impact on other drivers. The range of 55 meters is sufficient for most emergency situations, and the system can be easily implemented in a cost-effective manner. | The automatic traffic light controller for emergency vehicle project involves both software and hardware implementation. The software part of the project was created using  MicroCode Studio, which is specifically designed for PIC compiler.  The flowchart of the project shows that when the push button is pressed, an RF signal is transmitted to the RF receiver, which activates the PIC to control and trigger the traffic light to turn from red to green. | In this paper, we have successfully designed and analyzed an automatic traffic light controller for emergency vehicle. Peripheral interface controller (PIC) is used as the micro controller and the  system can be operated wirelessly using radio frequency (RF) during emergency cases. | Limitations in terms of accuracy, realism, availability, personalization, and feedback. While it offers many benefits for remote image consulting, these limitations should be taken into consideration. | - |