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Implementation Of Anonymous Vehicle Reporting And Communication System For Wrongly Parked Vehicle

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Article History	Abstract
Received: Revised: Accepted: **CC License** CC-BY-NC-SA 4.0	Improper parking can cause several issues and problems, including Reduced Accessibility, Inconvenience for Other Drivers, Public Transportation Disruption, Environmental and Aesthetic Concerns, Public Perception, and Traffic Congestion. Addressing these issues typically calls for a combination of traffic management, public awareness campaigns, law enforcement, smart urban design, and community involvement to preserve the successful and safe usage of public spaces.

1. Problem Statement

Illegal parking of vehicles in urban areas is a widespread problem that leads to a series of other issues. It worsens traffic congestion, endangers the safety of pedestrians, blocks the path of emergency services, and tampers with the usability and appearance of public areas. The general standard of living in cities is jeopardized by this illicit activity, which also hinders effective transit. To create safer, more approachable, and aesthetically pleasing urban environments, addressing this challenge calls for a designing Information and Communication system which will helps reduce the problems.

4. Background of the Study

Utilize Information and Communication technologies to inform car owners about parking infractions. Send automated messages or warnings, for instance, to inform owners of the problem and offer guidance on how to fix it.
Municipalities and organizations can enhance parking management, lower the number of improperly parked cars, and build a safer and more effective urban environment by incorporating these technology solutions. This technology can also assist in enforcing parking laws while reducing the adverse effects on the general population.

5. Review of Literature:

The review of relevant literature comprising of research articles published by Indian and international authors in national and international journals, conferences proceedings and theses conducted and presented in the following table. The literature review is conducted to find the answers to the following question.
1. What are the Problems created with illegal parking?
2. What are the development approaches used in communication with authorities and Vehicle Owner?
3. What are the Solutions to avoid Illegal Parking?
4. What are the major tools and techniques Proposed for Communication with Vehicle Owner?

1. **Janak Parmar et.al** The researcher highlighted Parking preferences are influenced by psychological factors as well as parking attributes. For users, out-of-vehicle costs are more significant than in-vehicle costs. For sustainable growth, parking policies should be integrated with transportation planning. Parking demand is directly impacted by the land-use parking creation rate. Sharing cars is tremendous for sustainability because it offers advantages for the economy and the environment [1].

2. **Hossam El-Din I. S. Ahmed et. al** The goal of this study is to establish broad guidelines and principles for parking solutions by examining the issue of car parking in cities and metropolitan areas. Planning, management, technology, environment, and aesthetics should all be considered in the final solutions to improve the quality of life for inhabitants. The goals of the study are to: - Determine the root causes of the parking issue and its detrimental effects. Studying the various traditional, but ineffective, methods offered to address the issue at the planning and management levels. Researching creative ideas that make use of contemporary technology or that take the environment and aesthetics into account when designing a plan. Acquiring knowledge about the effective and thorough solution of parking problems [2]

3. **Morillo Carbonell, Carlos et. al** This article aims to assess the impact of illegal on-street parking on the area's automobiles' commercial trip time. To quantify the detrimental impact that illegal parking entails to these already congested locations, the effect of illegal parking on the travel time of the vehicles in the zone is examined in an urban scenario. To accomplish the paper's goal, a 3x3 street model has been created and assessed for several scenarios. In this way, a few scenarios have been examined in relation to parameters related to vehicle intensity, the amount of illegal on-street parking, and the location of the illegals, using a traffic microsimulation model [3].

4. **Tejash Kumar Uttambhai et.al** Parking spaces are a major source of demand for metropolitan areas. As a result, there are now more transportation-related difficulties than ever before, including accidents, traffic jams, congestion, uneven supply and demand, and several environmental issues. One could argue that inadequate parking management and policies are the cause. India suffers from problems including criminal activity, illegal parking, double parking, and footpath encroachment due to a lack of enforcement. They also have a negative effect on the air quality and noise level of the environment. on the pavement. In India, one of the main benefits of on-street parking is its costlessness [4].

5. **GX Li et. al** An orderly and appropriate vehicle parking infraction notice system was devised by researchers in order to control this non-standard parked behavior and to guide and regulate owners in developing excellent parking habits. The article describes a system that records vehicle information on illegal parking. The way this system operates is that a wireless MMS image terminal takes pictures of illegal vehicles, then uses the GPRS network to send those pictures in real time to the school's Data Center Computer in the Security Department. This ensures that information about illegal vehicles is promptly recorded and alerted. Illegal cars will be restricted or cautioned not to reenter the campus in the interim [5].

5.1 Analysis of the review of literature
All things considered, these studies emphasize the necessity of comprehensive and integrated approaches that consider environmental, technological, and regulatory factors to address the problems associated with parking in metropolitan area.
1. Integration with Transportation Planning: For sustainable urban development, a number of studies highlight the integration of parking regulations with more comprehensive transportation planning.
2. Technology Solutions: Two studies address the application of technology. One focuses on modern parking solutions, while the other examines the use of an automated system to monitor and control illegal parking.
3. Environmental Impact: A number of studies take the environment into account, bringing attention to problems like noise pollution and poor air quality as a result of insufficient parking management.
4. Impact of unlawful Parking: Two studies especially address the effect of unlawful parking; the first one focuses on the time it takes for commercial trips, while the second one suggests a mechanism for regulation and enforcement.

6. The objectives of the study:

1. To study the existing illegal vehicle Parking communication system.
2. To Design, Develop, and Implement feasible solution to overcome the problem of vehicle owner communication system.

7. Significance of Study:

Technology plays a vital role in addressing parking challenges. Modern parking solutions leverage technological advancements to improve efficiency, accessibility, and enforcement. Automated systems, as described in one study, enhance the monitoring and control of illegal parking, providing a more systematic and proactive approach to managing parking issues.
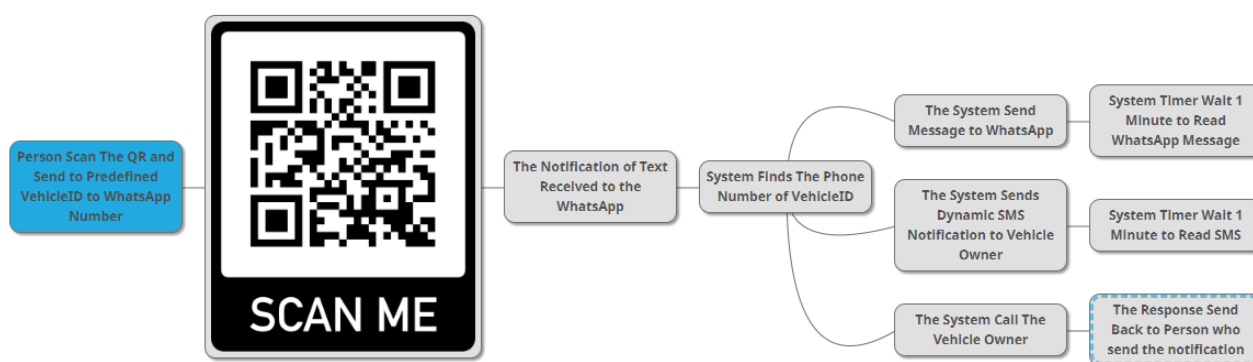
8. Tentative Research Methodology

The researcher will study the existing practices of illegal vehicle Parking communication system adopted by organizations. This research will be applied research in nature, and it will utilize Computer Hardware and Open-Source Software. In view of the objectives stated above, the methodology adopted for the present study is elaborated as under
To arrive at valid research outcome, the following methods will be used
1. Information Gathering for the System Development -AVrcs
2. Analysis of Information Collected
3. Architect & Database Design of Cloud Based Communication System- AVrcs
4. Development of AVrcs
5. Testing of Modules of AVrcs
6. Implementation of AVrcs

9. System Flow Diagram

The Application Required to Design the system
1. WordPress Based Website with Elementor Pro Plugin
2. Pabbly Connect Subscription
3. SMS API
4. WhatsApp API
5. Effbot Subscription

Conclusion

In addition to addressing the immediate issues related to illegal parking, the information and communication system also reduces costs through automated enforcement and monitoring, minimal ticketing and administrative costs, reduced traffic management costs, enhanced cost-effective urban planning, and positive

economic impact. These benefits come from the system's efficient use of technology, decreased manpower requirements, and streamlined enforcement procedures.

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