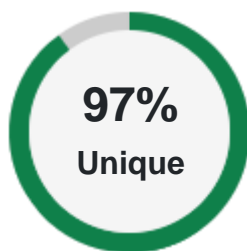
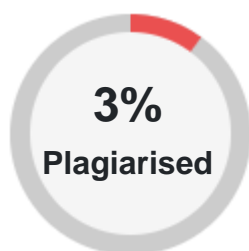


# PLAGIARISM SCAN REPORT



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Using Artificial Intelligence in HUST parking surveillance 1. Introduction The number of vehicles on the road is increasing, along with the mismanagement of available parking spaces, leading to parking problems. The smart parking system using AI provides the solution for us to handle these problems perfectly. Artificial Intelligence (AI) is playing an increasing role in our daily lives. The use of AI in parking management is an inevitable trend, especially for the parking lot at Hanoi University of Science and Technology. 2. Related works The traffic in and out of Hanoi University of Science and Technology is usually moderate and the number of vehicles in and out is usually fixed. However, during the dismissal or after school hours, traffic congestion and traffic jams still occur at the checkpoint. Therefore, if the normal parking method is applied, it will cause more chaos and more time for both the sender and the controller. Limitations of using paper ticket control at Hanoi University of Science and Technology: \* Time consuming: access control by manual operation of paper tickets, which is more time consuming. Especially during the peak hours, teachers, students are all out of the parking lots. If only control by writing a normal paper ticket, it will cause traffic congestion and cause trouble for the sender. \* Unsafe: The parking lots at the school do not offer peace of mind for sender when parking here. Unsafety and still happen vehicle theft, vehicle swapping. \* Human resources: with large university, there will be many vehicles in and out, including people working at schools and visitors. If you only keep one handcraft, it will be quite costly and take more labor costs for the school. 3. Proposal Methods 3.1 solution Using AI in combination with RFID technology for university parking management solution helps control faster, safer, and more professional. Solution for fixed vehicle parking: \* Customers will be granted a monthly fixed card. \* This card must be registered in the system in advance with information such as license plate, vehicle type ... for data storage and comparison. \* When the vehicle enters, leaves the parking lot, just swipe the card, the system automatically analyzes and collates the parameters using AI. If the barrier matches, it will automatically open for people and vehicles to move in, out of the parking lot. If there is no matching information, the system will issue an alarm signal. Solution for not fixed vehicle parking: \* Customers will be issued a daily or non-fixed vehicle card. \* When the customer enters the parking lot, the security guard will take the card for the customer. \* Information will be collected from the camera in the system, including ID card, license plate number, time of sending, ... These information are stored in the system software as a basis for collating and calculating sending costs. When the vehicle comes out, customers just need to give the card to the staff and pay the fee. 3.2 Benefits The benefits of using AI in parking surveillance \* Quick control: It only takes about 3 seconds for one swipe of the entrance, exit card. No need to write down paper tickets or waste time on manual checking like traditional parking. \* Security: The application of a smart parking system using magnetic card technology combined with number plate identification helps to make control safer and more secure. Camera system replaces human on surveillance, wider observation, helping customers to park their vehicle feel more secure. \* Save human resources: the system helps businesses save costs. Because there are not too many security guards, it can solve the congestion situation. \* Smart parking control system also allows checking card information; search data; check the number of vehicles in the yard; statistics of vehicles in and out of parking lots... These features make management easier and more efficient. 4. Conclusion Smart parking solution using AI will make the university more efficient, modern and help a lot. With the development of the university, now and in the future, smart parking will be more important to the success of the school. 5. Future work Over time, data is collected from vehicles larger, so that AI can do more. This can allow system to use AI to guide drivers to go exactly available place.

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Abstract: The increasing number of vehicles on the road along with the mismanagement of available parking space leads to the parking related problems as well ...

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