



PARK_IN

SMART PARKING SYSTEM

PRIYA DHARSHINI 210701197
SAJAY PRAKASH K 210701222



The background features four decorative geometric patterns in the corners. The top-left corner has a series of parallel diagonal lines. The top-right corner contains a cluster of overlapping semi-circles in yellow, red, teal, and blue. The bottom-left corner features a similar cluster of overlapping semi-circles in red, teal, blue, and red. The bottom-right corner has a large, faint semi-circle outline with several parallel diagonal lines inside it.

INTRODUCTION

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The Smart IoT Car Parking Project aims to revolutionize the way urban parking spaces are managed by leveraging advanced IoT technology. This innovative system integrates sensors, microcontrollers, and cloud computing to provide real-time data on parking space availability, enhancing both the efficiency and convenience of parking in busy urban areas.



The image features a light gray background with the word "PURPOSE" centered in a bold, blue, sans-serif font. The corners are decorated with abstract geometric patterns. The top-left corner has a series of parallel diagonal lines in a light blue-gray color, with a curved line segment extending from the top right towards the center. The top-right corner contains several overlapping semi-circles in yellow, red, teal, and dark blue. The bottom-left corner features a cluster of overlapping semi-circles in red, teal, and dark blue. The bottom-right corner has a large, light blue-gray arc with several parallel diagonal lines extending from its bottom left towards the center.

PURPOSE

Reduction of Traffic Congestion

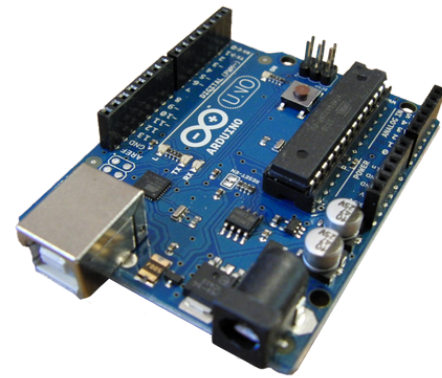
By providing drivers with real-time information on available parking spots via a web or mobile app, the system significantly reduces the time spent searching for parking. This not only eases individual stress and frustration but also contributes to smoother traffic flow in urban areas. The reduction in the time vehicles spend circling looking for parking spots directly translates to lower traffic congestion and reduced emissions from idling cars.

Enhanced Parking Experience

The integration of cashless payments and advance reservations into the system streamlines the parking process, making it more convenient for users. Drivers can reserve a parking spot ahead of time and pay electronically, eliminating the need for cash transactions and reducing wait times. The seamless and user-friendly interface of the mobile app ensures that drivers can easily find and reserve parking spots, enhancing their overall parking experience.



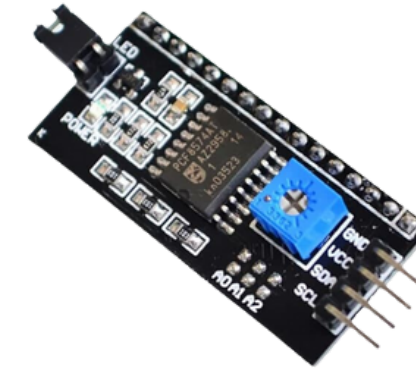
COMPONENTS USED



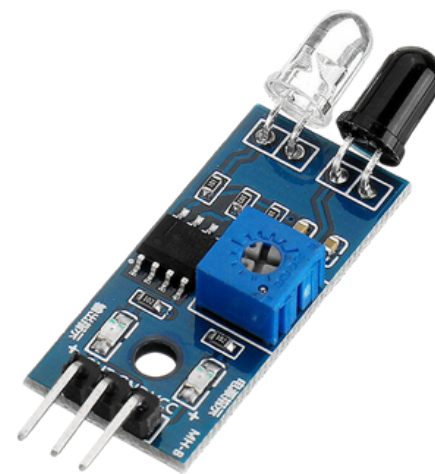
Arduino UNO



20x4 LCD Display



I2C LCD Module

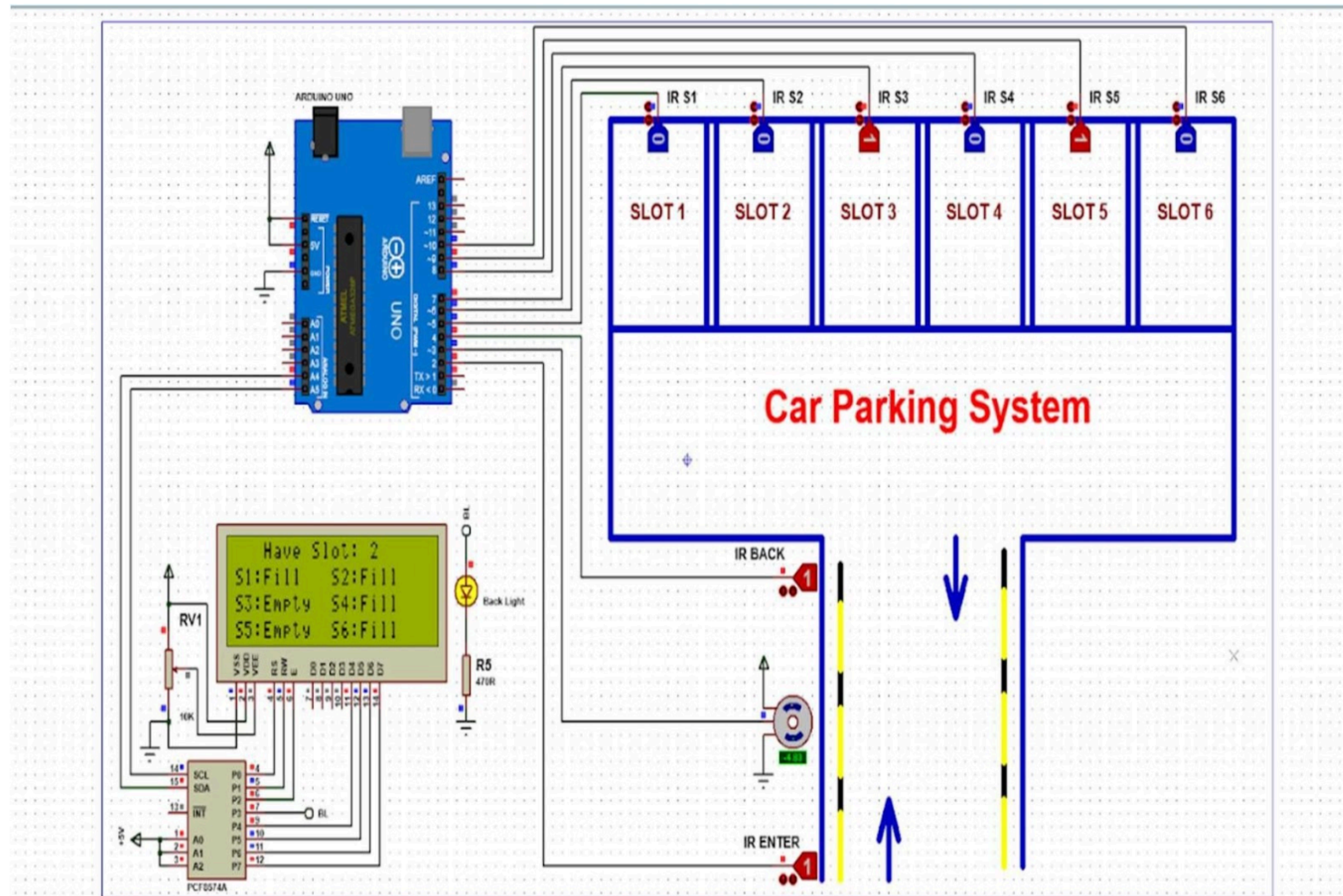


IR Sensor



Mini Servo Motor

CIRCUIT DIAGRAM






RESULTS

Real-Time Monitoring

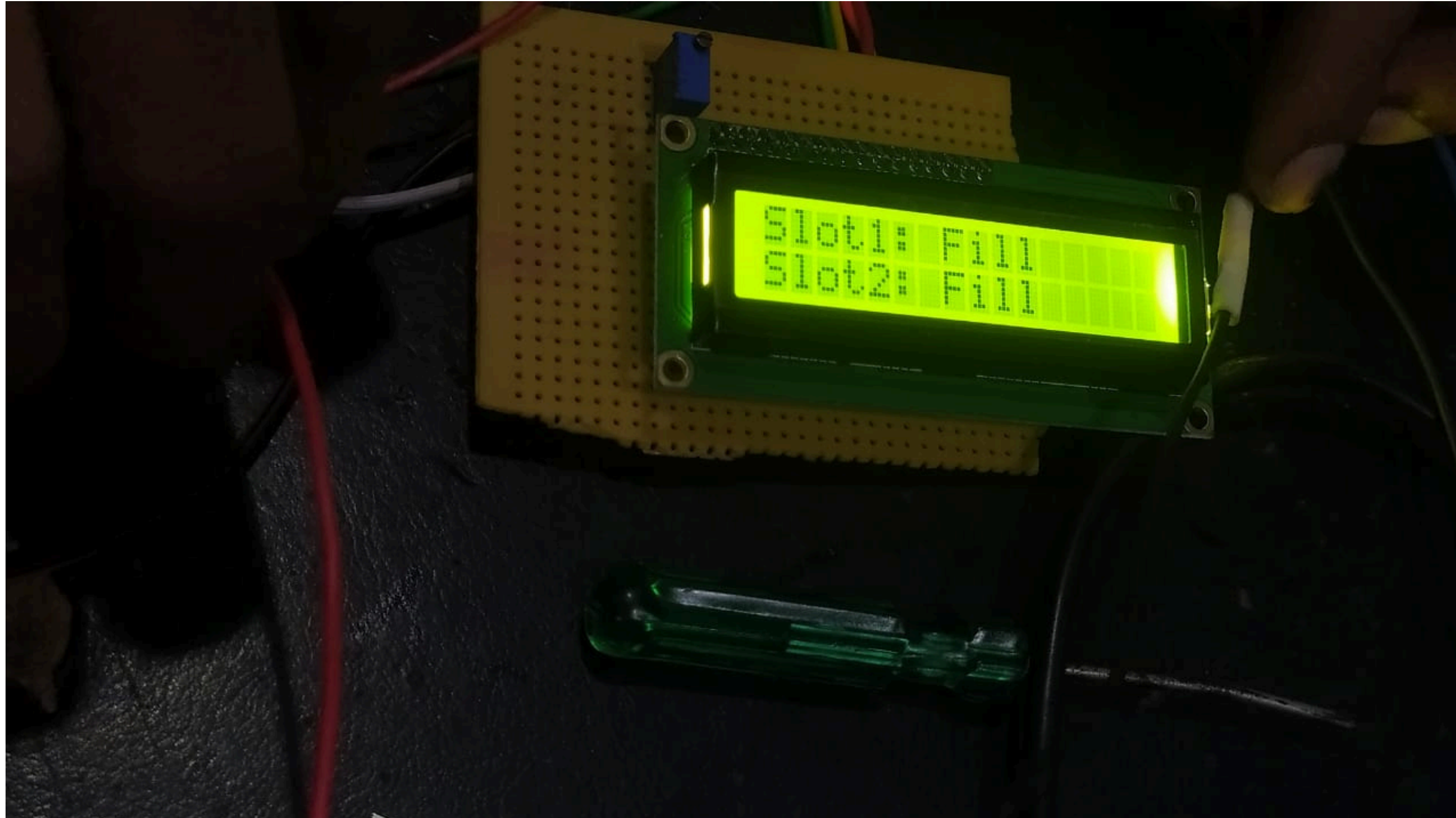
The implementation of IoT sensors has successfully enabled real-time monitoring of parking spaces. Data collected from these sensors is continuously transmitted to the cloud, allowing for immediate updates on parking occupancy. This has led to a more accurate and responsive parking management system.

User Interface

The application has provided users with a seamless experience in finding and reserving parking spots. Drivers can easily view available parking spaces, make reservations, and complete cashless payments. The user-friendly interface has received positive feedback for its simplicity and effectiveness.



RESULTS



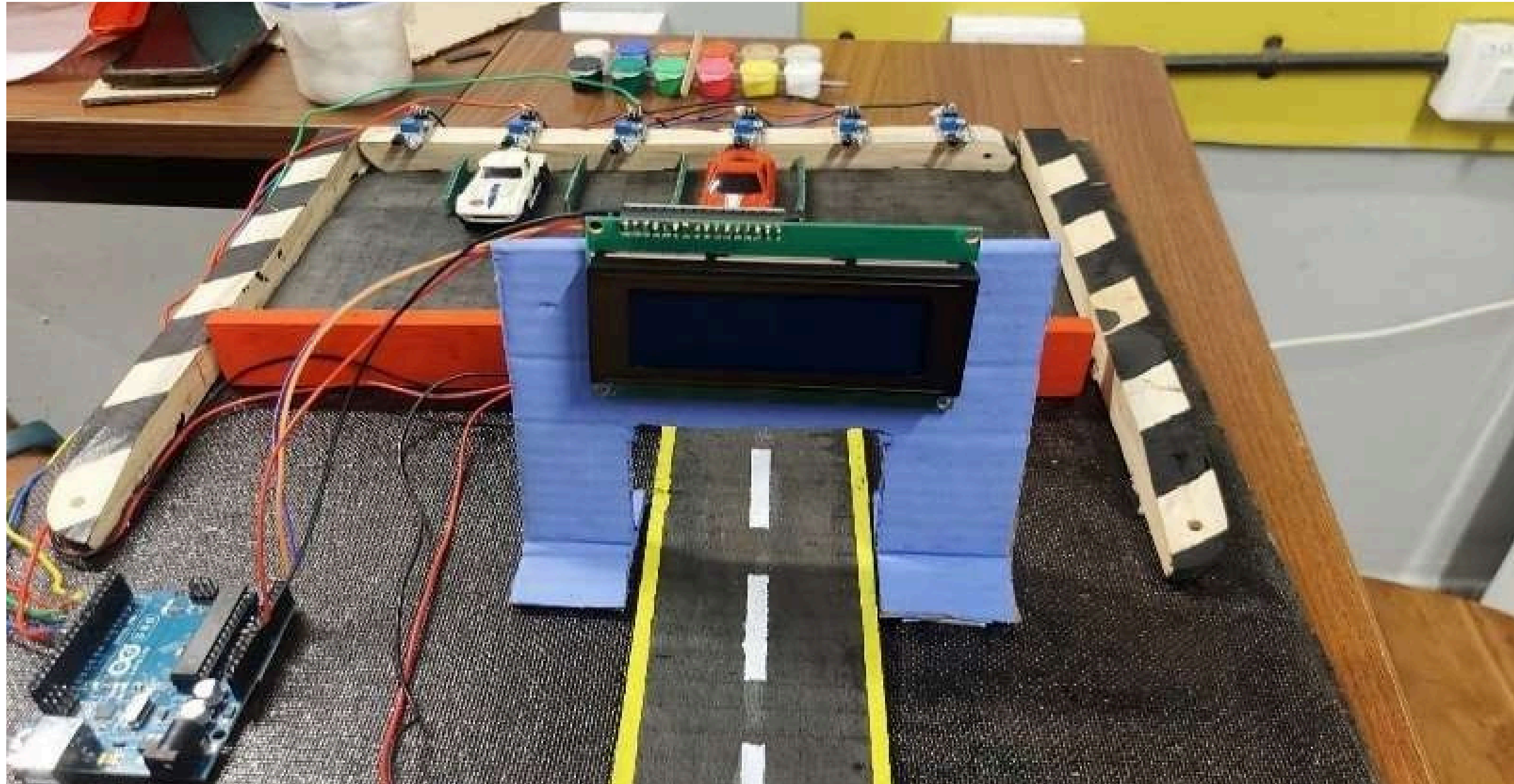
RESULTS



RESULTS

```
01:09:30.358 Slot1: Full
01:09:30.358 Slot2: Full
01:09:30.401 Slot3: Full
01:09:30.404 Slot4: Full
01:09:30.408 Slot5: Full
01:09:30.419 Slot6: Full
01:09:30.419 Gate close-Slot is Full
01:09:33.735 Gate close
01:09:37.745 Slot1: Full
01:09:37.747 Slot2: Full
01:09:37.834 Slot3: Full
01:09:37.836 Slot4: Full
01:09:37.925 Slot5: Full
01:09:38.003 Slot6: Full
01:09:38.003 Gate close-Slot is Full
01:09:41.239 Gate close
01:09:44.961 Slot1: Full
01:09:44.962 Slot2: Full
01:09:44.962 Slot3: Full
01:09:44.964 Slot4: Full
01:09:45.024 Slot5: Full
```

RESULTS





CONCLUSION

The proposed Smart IoT Car Parking Project represents a forward-thinking approach to alleviating the challenges of urban parking amidst rapid technological growth and urbanization. By leveraging ground sensors, Arduino Uno, IoT devices, and an Android application, this system has the potential to revolutionize urban parking. It significantly enhances efficiency, reduces traffic congestion, and improves the overall urban experience. Technologies like this smart auto parking system promise a future where urban mobility is more sustainable, efficient, and convenient, paving the way for smarter and more livable cities.





FUTURE ENHANCEMENTS

Integration of Autonomous Vehicles

For effective navigation and parking, self-driving automobiles can communicate with parking facilities.

Follow Sustainable Practices

Including electric car charging stations and using solar energy to power parking structures are examples of renewable energy sources.

Augmented reality and virtual reality

Users may locate open parking spots with the help of AR glasses or VR simulators.



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THANK YOU