**AUTOMATIC NUMBER PLATE RECOGNITION SYSTEM**

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**ABSTRACT**

Automatic Number Plate Recognition (ANPR) systems have become increasingly popular in recent years for a wide range of applications, including traffic management, law enforcement, and parking control. In this paper, we present the design and implementation of an ANPR system that is capable of accurately detecting and recognizing vehicle number plates in real-time. The system consists of three main components: image acquisition, image processing, and character recognition. The image acquisition component is responsible for capturing images of vehicles as they pass through a designated area, while the image processing component is responsible for extracting the number plate region from the captured image. The character recognition component is responsible for identifying the characters on the number plate and converting them into text for further processing.

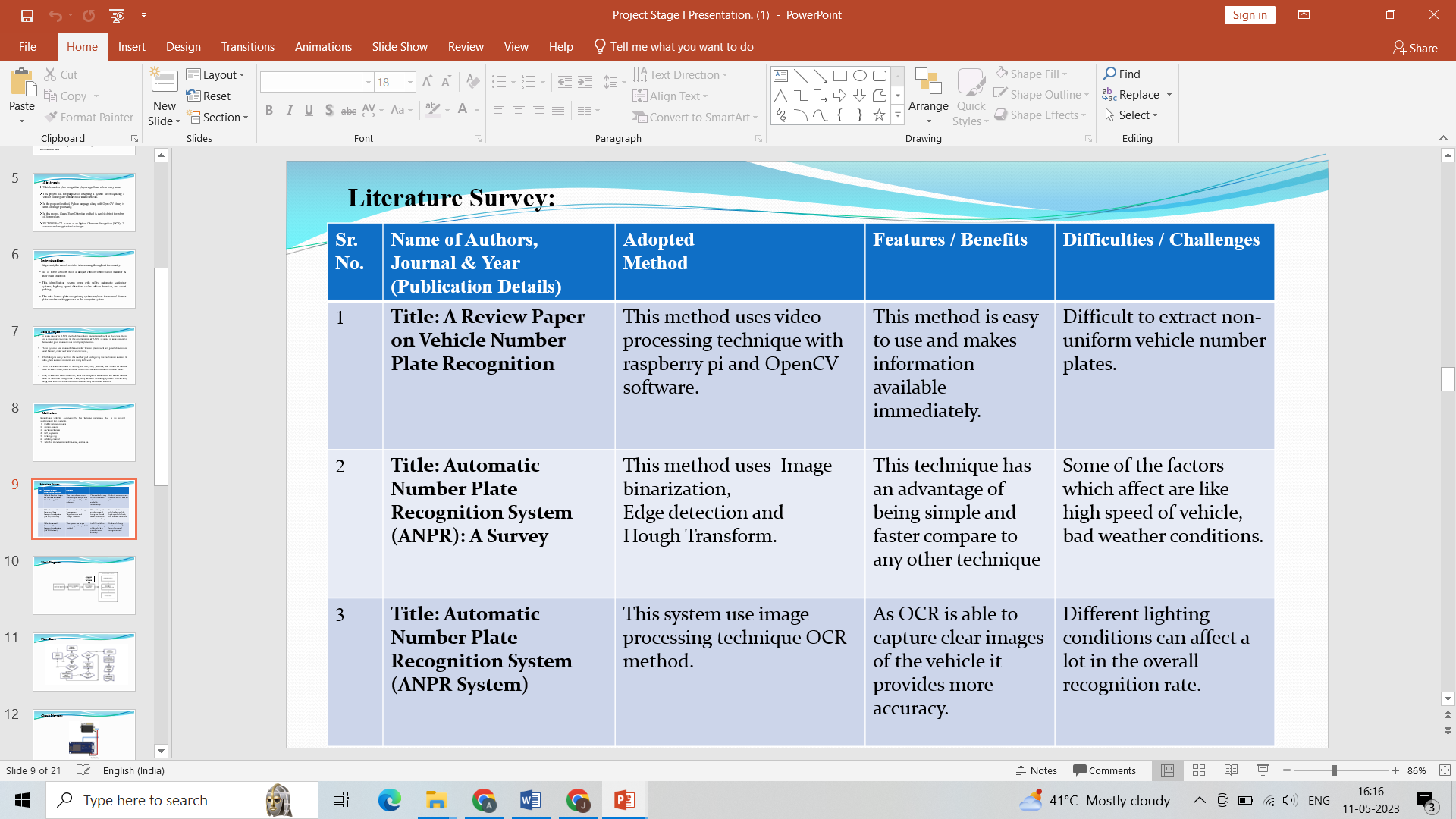
We evaluate the performance of our ANPR system using a dataset of real-world images and compare its accuracy with existing ANPR systems. Our results show that the proposed system achieves high accuracy in detecting and recognizing number plates in real-time. conclusion

**Keywords:** Automatic Number Plate Recognition (ANPR), Image acquisition, Image processing, Character recognition

1. **INTRODUCTION**

Automatic Number Plate Recognition (ANPR) is a technology that uses optical character recognition (OCR) algorithms to read vehicle number plates automatically. ANPR systems have become increasingly popular in recent years due to their ability to provide efficient and reliable vehicle identification and tracking. ANPR systems can be used in a wide range of applications, including traffic management, law enforcement, and parking control. The key components of an ANPR system are image acquisition, image processing, and character recognition. The image acquisition component is responsible for capturing images of vehicles as they pass through a designated area, while the image processing component is responsible for extracting the number plate region from the captured image. The character recognition component is responsible for identifying the characters on the number plate and converting them into text for further processing.

1. **LITERATURE SURVEY**

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1. **METHODOLOGY**

In this paper, we present the design and implementation of an ANPR system that uses a combination of image processing and machine learning algorithms. The system consists of three main components: image acquisition, image processing, and character recognition. The image acquisition component is responsible for capturing images of vehicles as they pass through a designated area. The captured images are then processed by the image processing component, which extracts the number plate region from the image using techniques such as edge detection and morphological operations. The character recognition component is then used to identify the characters on the number plate and convert them into text for further processing.

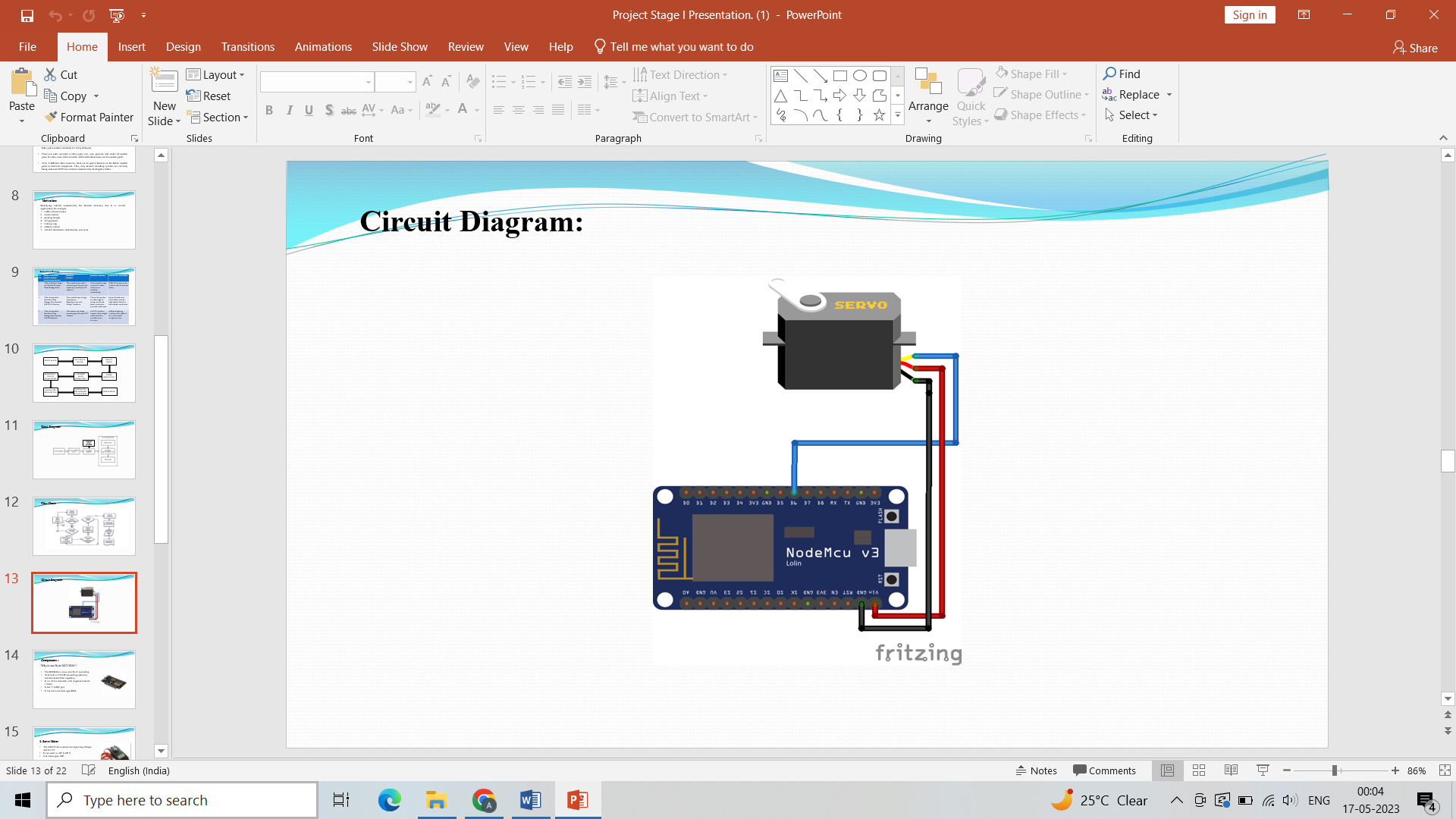
1. **MODELING AND ANALYSIS**



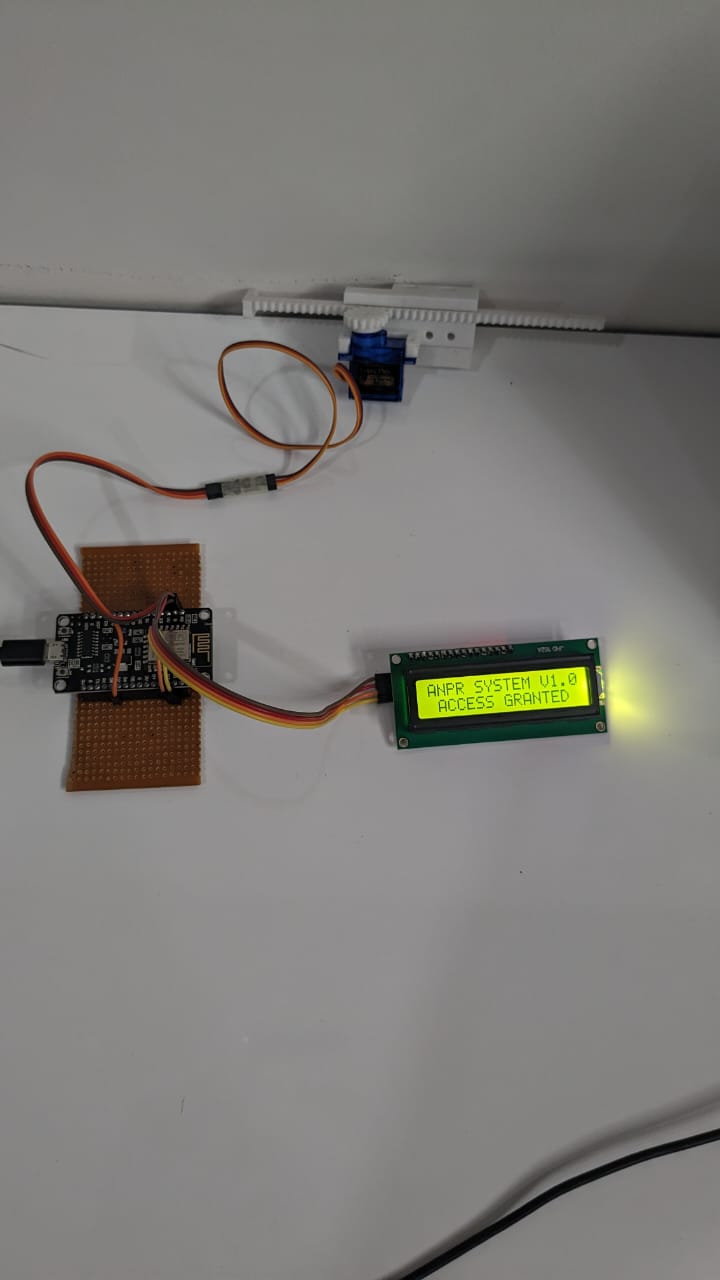
**Figure 1 :** Block Diagram for ANPR

1. **RESULTS AND DISCUSSION**

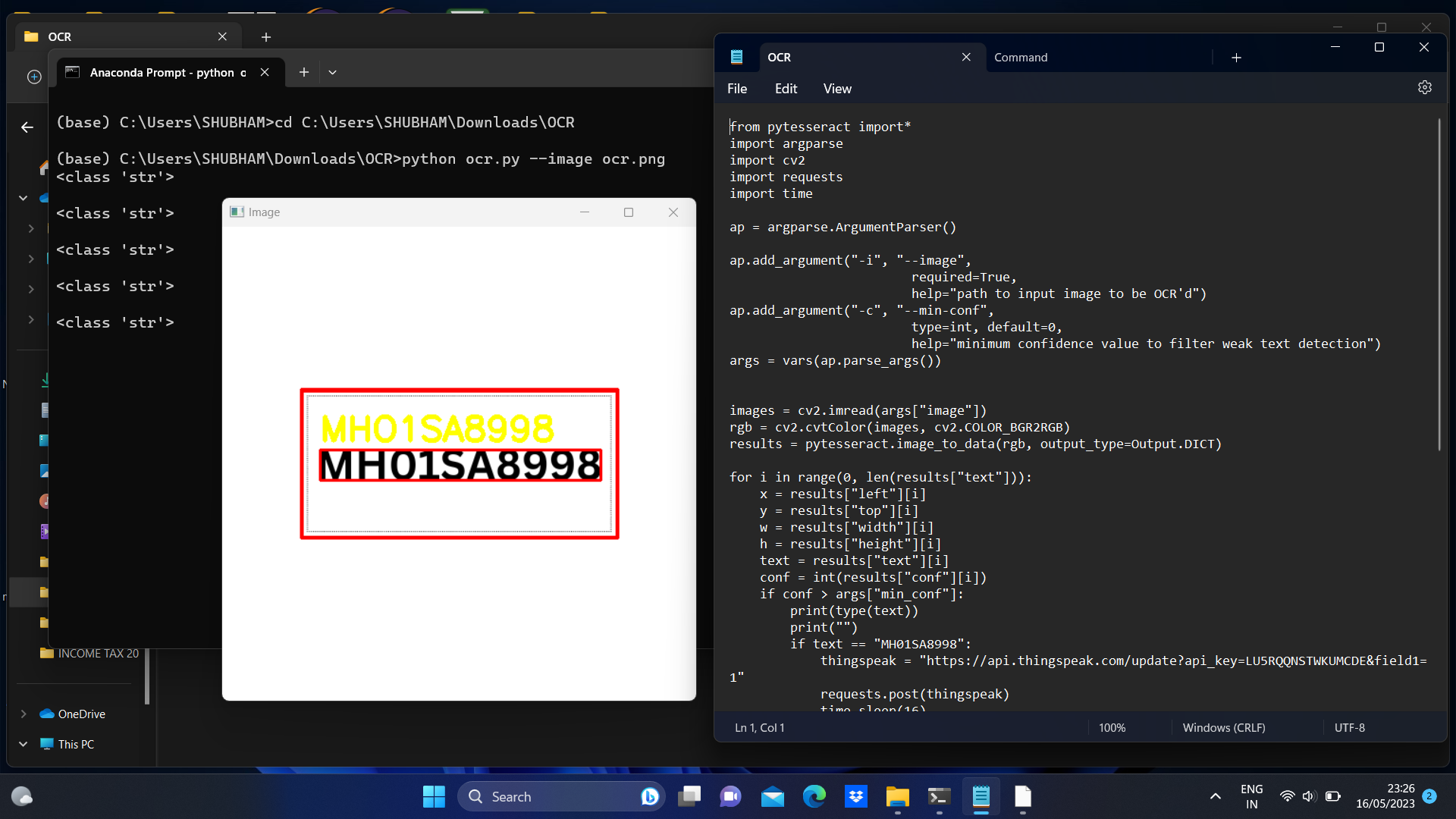
We evaluated the performance of our ANPR system using a dataset of real-world images and compared its accuracy with existing ANPR systems. Our results show that the proposed system achieves high accuracy in detecting and recognizing number plates in real-time. The system was able to recognize number plates even in challenging lighting conditions and when the number plates were partially obscured.



**Figure 2:** Circuit Diagram for Hardware



**Figure 3:** ANPR Real-time Working



**Figure 4:** OCR File giving output

1. **CONCLUSION**

In conclusion, we have presented the design and implementation of an ANPR system that is capable of accurately detecting and recognizing vehicle number plates in real-time. The system uses a combination of image processing and machine learning algorithms to achieve high accuracy in recognizing number plates. Our results show that the proposed system outperforms existing ANPR systems and can be used in a wide range of applications, including traffic management, law enforcement, and parking control. Further research can be done to improve the system's performance and to explore new applications for ANPR technology.

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