IPXAnalytics
Datasheet

LPR Module

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Contents

LPR Module 3

IPXAnalytics 3

Application Advantages 3

Commercial Video 4

Integration 5

Customizations 5

Limitations and Considerations 5

Technical Specifications 5

Compatible License Plates 5

Recommended Minimum Sizes for Detection 6

License Plate Tilt Angle 7

How to Identify an Object's Size 8

Examples: 8

Ideal Camera Resolution for Object Recognition 11

LPR Module

Compatibility: IPXAnalytics PRO, 2.0 or higher.

The License Plate Recognition (LPR) module of IPXAnalytics enables real-time identification of vehicle, truck, and motorcycle license plates. Utilizing advanced computer vision and artificial intelligence algorithms, the system processes images with high efficiency, ensuring fast and reliable reading even under challenging conditions. This feature is ideal for applications in access control, security, parking management, and fleet monitoring, providing greater automation and intelligence in data analysis.

IPXAnalytics

IPXAnalytics is software that uses artificial intelligence to learn and detect events from surveillance cameras. The AI is based on neural networks and LLMs, which are algorithms designed to mimic human brain behavior. Compared to existing video analytics software on the market today, IPXAnalytics significantly reduces the number of false alarms.

Application Advantages

Real-Time Recognition: Fast and accurate identification of vehicle, truck, and motorcycle license plates.

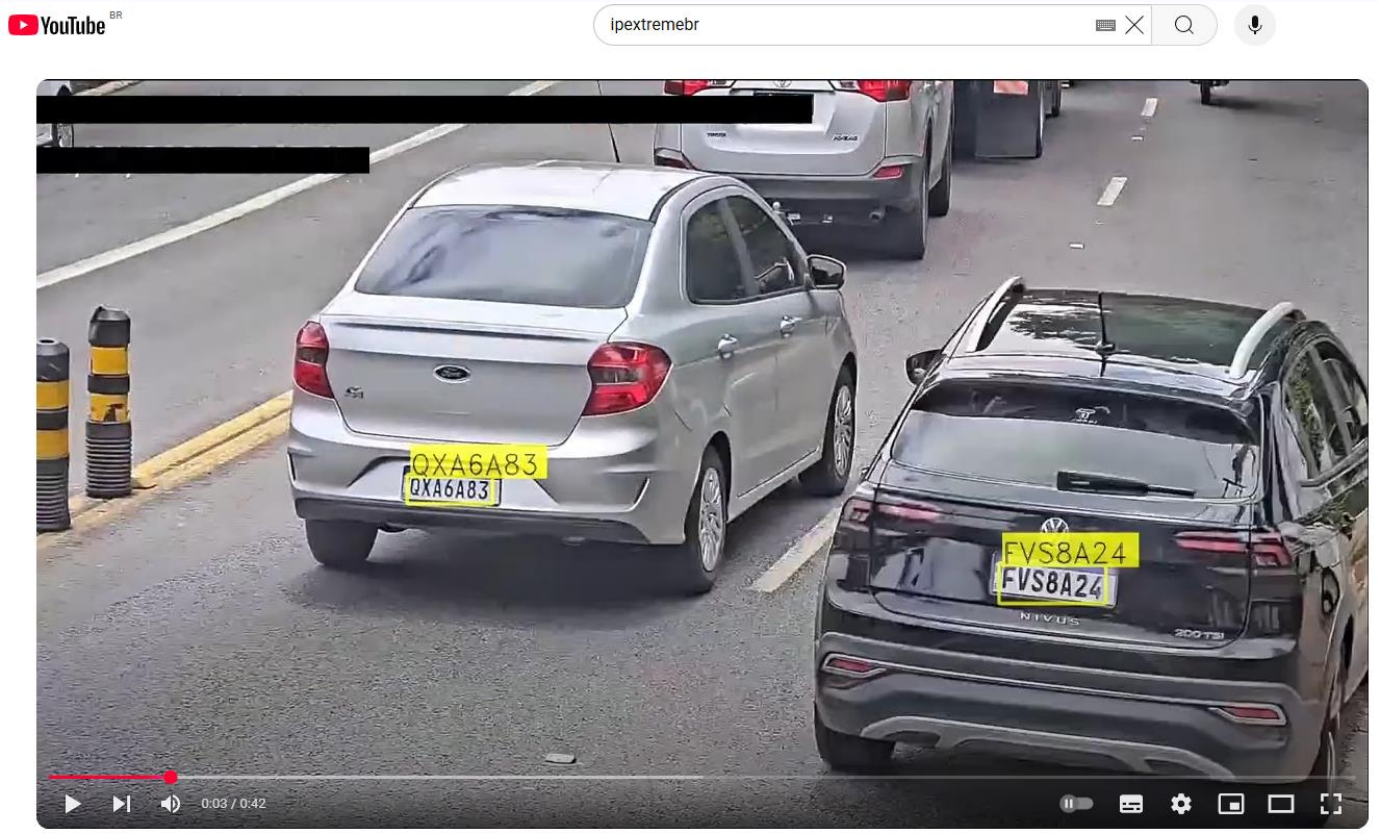
Process Automation: Reduces the need for human intervention in access control and fleet management.

Security Enhancement: Efficient monitoring to identify suspicious or unauthorized vehicles.

Compatibility with Various Environments: Effective operation in parking lots, gatehouses, toll booths, and urban roads.

Reduced Operational Costs: Minimizes manual errors and increases efficiency in vehicle management.

Commercial Video



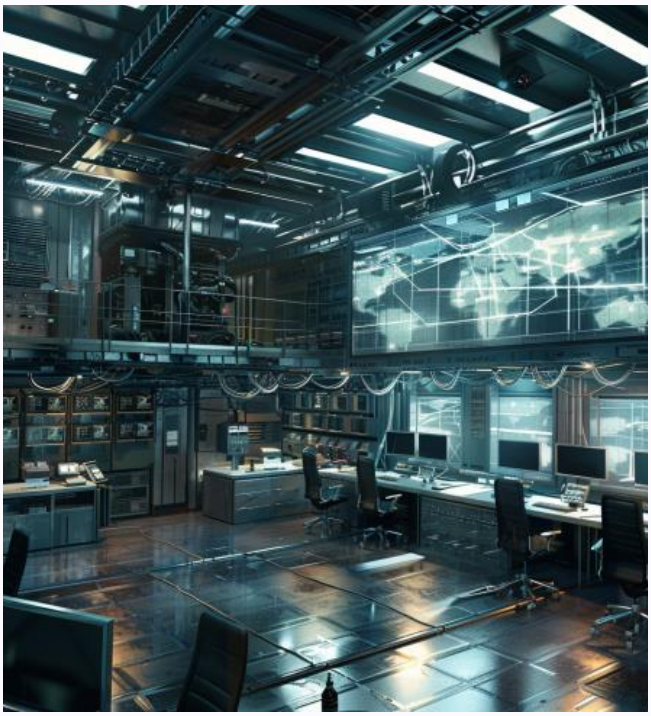
https://www.youtube.com/watch?v=t2ejoKe_0dI

Integration

The software has an HTTP REST API that allows integration with any partner system. The software is integrated with the market-leading VMSs: Digifort, D-Guard, Milestone and Avigilon.

Please check with our team about any additional licenses required for third-party software integrations.

For more information: www.ipextreme.com.br



Customizations

In addition to the various features mentioned here, the software can assist in numerous other scenarios. It is designed to be customized to meet the client's needs. For example, in a production environment, the software can identify errors and critical failures in a specific part. To request a customization proposal, contact us through our website: www.ipextreme.com.br.

Limitations and Considerations

We understand the importance of reliability in critical applications. Therefore, it is essential to note that no artificial intelligence software can guarantee 100% accuracy. Our solution provides robust and fast detection, but we always recommend maintaining backup systems and additional security protocols to ensure a comprehensive response in emergency situations.

IPXAnalytics offers demo licenses, and we recommend selling to the customer only after successful testing in the desired environment.

Technical Specifications

Compatible License Plates

Albania
Algeria
Andorra
Argentina
Australia
Austria
Azerbaijan
Belarus
Belgium
Bolivia
Bosnia and Herzegovina
Botswana
Brazil
Bulgaria
Cambodia
Cameroon
Canada
Cape Verde
Chile
Colombia
Costa Rica
Croatia
Cuba
Cyprus
Czech Republic
Democratic Republic of the Congo
Denmark
East Timor
Ecuador
El Salvador
Estonia
Finland
France
Georgia
Germany
Ghana
Greece
Guatemala
Honduras
Hungary
Iceland
India
Indonesia
Ireland
Israel
Italy
Jordan
Kazakhstan
Kenya
Kyrgyzstan
Latvia
Lebanon
Lithuania
Luxembourg
Macau
Malaysia
Mozambique
Myanmar
Namibia
Netherlands
Norway
Pakistan
Palestinian National Authority
Paraguay
Peru
Philippines
Poland
Portugal
Puerto Rico
Republic of the Congo
Romania
Russia
Singapore
Slovakia
Slovenia
South Africa
Spain
Sri Lanka
Sweden
Switzerland
Tanzania
Turkmenistan
Turkey
United Kingdom
Ukraine
Uruguay
Uzbekistan
Venezuela
Vietnam
Zimbabwe

Recommended Minimum Sizes for Detection

A common question is about the ideal camera position for optimal detection. It is difficult to determine with absolute certainty because cameras can have different lenses, angles, and zoom levels. The most important factors are the size of the license plate in the image and its visibility. The table below indicates the recommended minimum object size in the image as a percentage. The percentage refers to the relative size of the object, as there may be various types of resolutions and resizing.

For example, when we say an object has a 1% size, we mean that in a 512x512 image, the object would be 5.12 pixels by 5.12 pixels. Refer to the next chapter for instructions on checking object size directly in IPXAnalytics.

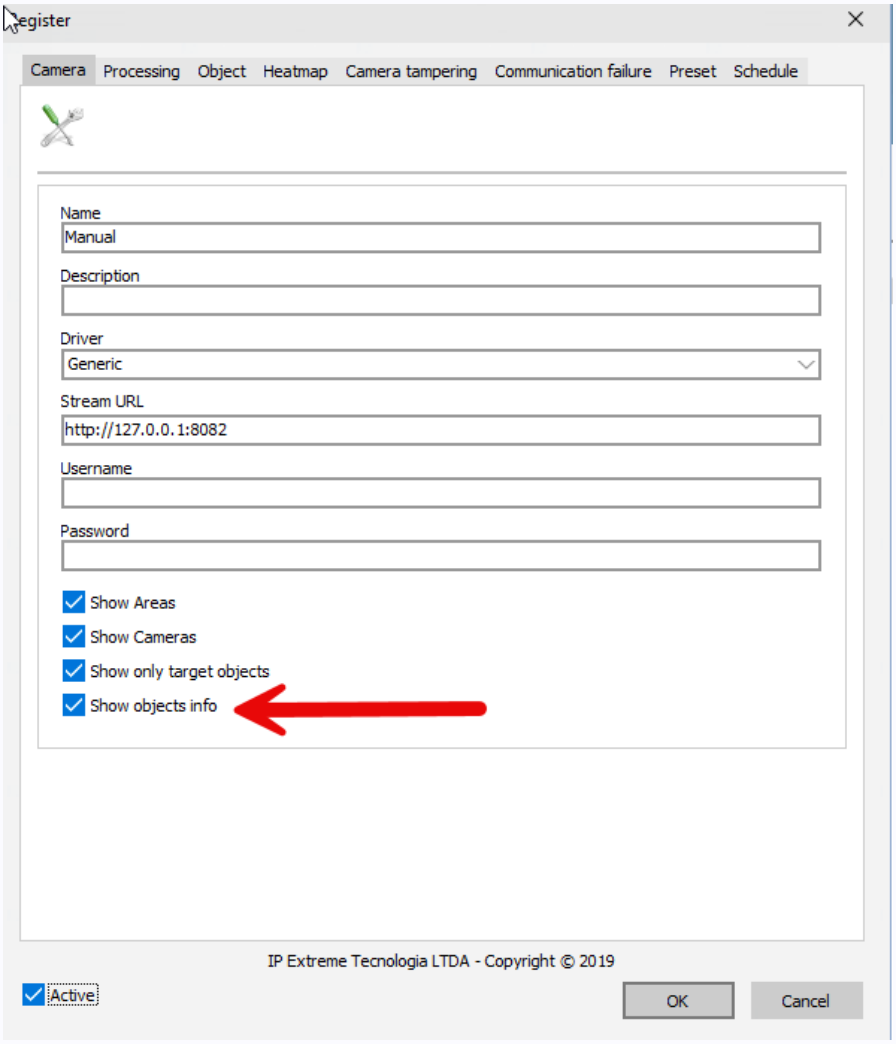
Objeto	Tamanho mínimo percentual para identificação	Altura da câmera
placa	5%	1-5 metros

License Plate Tilt Angle

The tilt angle of the license plate in the image should be less than 5 degrees. The plate should be as straight as possible without distortions. Below are some examples:

How to Identify an Object's Size

In IPXAnalytics, you can view the live image in two ways: using debug mode or by clicking "View" in the admin client. When registering a camera, in the first tab, check the option "Show object information." This option will display the size of each detected object in the image and its orientation (vertical or horizontal).

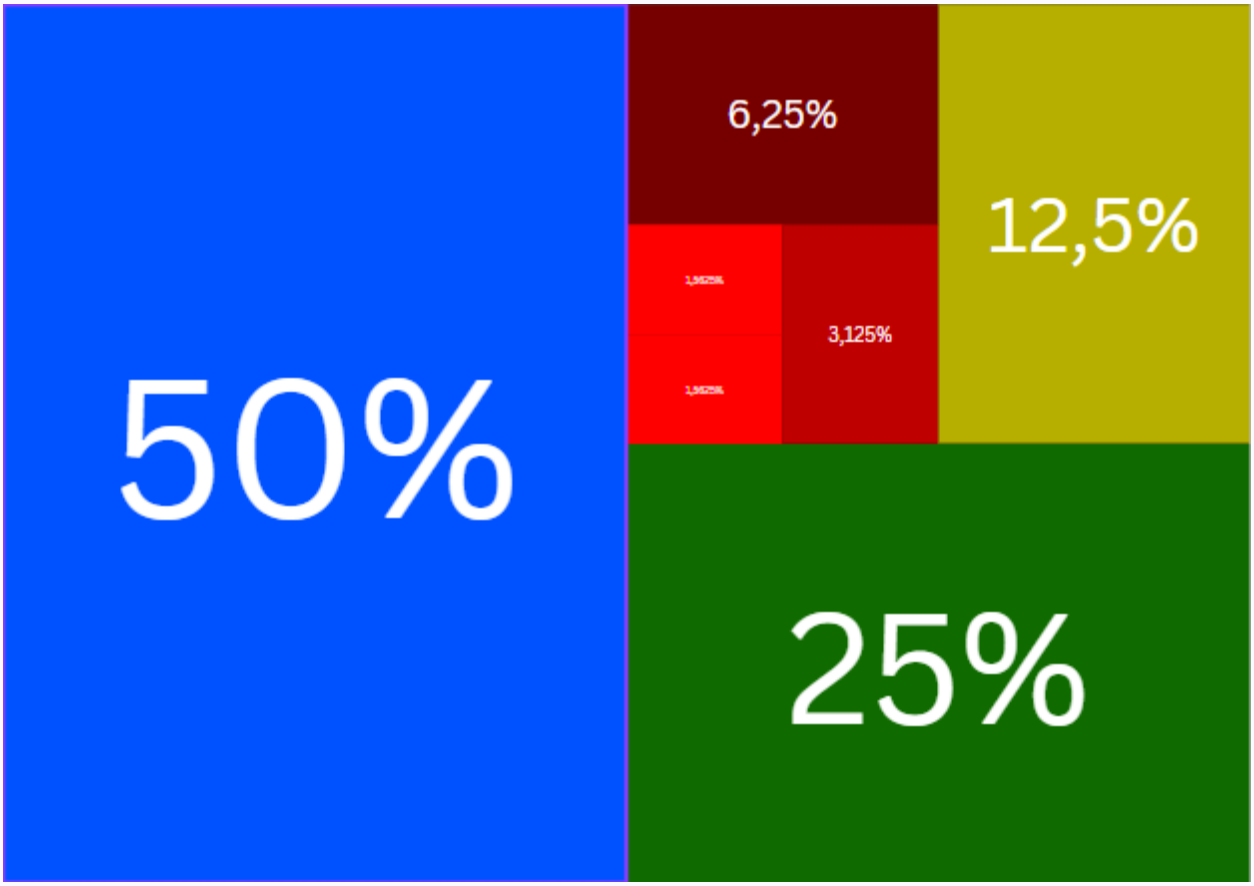


Examples:

A person detected in the image with a total size of 4.0%.

The image is designed to visually illustrate an object's proportion relative to the total screen. It divides the space into different percentage areas, making it easier to understand the minimum required size for computer vision software to accurately recognize an object.

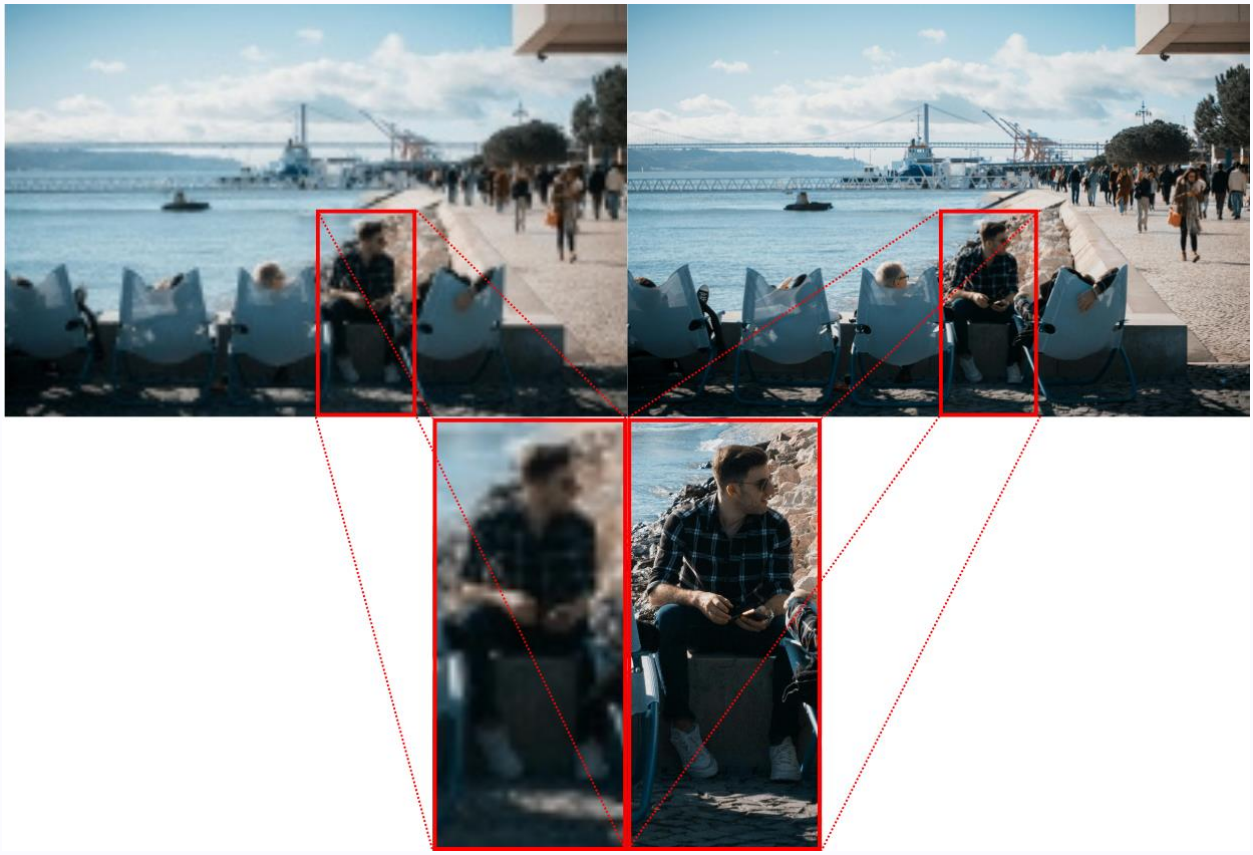
Each rectangle represents a specific fraction of the total screen, starting at 50% and successively subdividing each area into halves. This allows users to intuitively understand how different sizes affect detection and which minimum dimensions are recommended for effective recognition.


50%
6,25%
12,5%
3,125%
25%

Ideal Camera Resolution for Object Recognition

For effective object recognition, camera resolution is essential. The minimum recommended resolution for optimal performance is 1024x1024. This resolution provides sufficient detail for accurate detection and classification while balancing computational efficiency.

Higher resolutions, such as 1080p or 4K, require more processing power without significantly improving accuracy and may lead to diminishing returns. Conversely, lower resolutions can result in blurry or distorted images, making object recognition difficult.

Therefore, a resolution of 1024x1024 is the ideal minimum for reliable and efficient object detection.

Comparison of Low vs. High Resolution