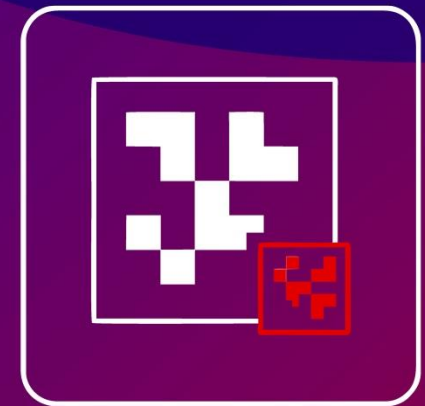




# TRASSIR ArUco Detector

ArUco marker recognition module

Search for objects on-site using ArUco marker detection



# TRASSIR ARUCO DETECTOR

**Auxiliary tracking tool for warehouses, manufacturing facilities, retail etc.**

**The built-in ArUco code generator creates markers that are then placed on objects of interest.**

**These markers are detected upon entering the camera's field of view and indicate the location of objects in the area.**

## Designed to prevent:

- ✓ Uncontrolled movement of objects within the area, ensuring their quick search
- ✓ Shipment errors
- ✓ Errors when accepting goods at the warehouse
- ✓ Difficulties finding the right product among items with similar packaging
- ✓ Late determination of warehouse stocks which lead to late ordering of new inventory

## HOW DOES IT WORK?

**TRASSIR has a built-in ArUco code generator (augmented reality codes) that enables a number to be encrypted into a picture. The ArUco marker is a two-dimensional barcode (QR code) consisting of one or more segments.**

The marker is printed in as large a size as possible and physically applied to the object of interest.

Recognition cameras are installed on-site. TRASSIR recognises the ArUco code and logs it as a number.

### Using the ArUco marker detector, TRASSIR can:

- **ArUco marker recognition on both static and moving objects**
- **Decrypt marker contents and display them on the operator's screen**
- **Marker content can be used in scripts**

# TRASSIR ARUCO DETECTOR | USAGE SCENARIOS

**The TRASSIR ArUco Detector module enables quick searches of goods in an archive, tracking types of goods, pallets and any blanks (parts), movement of goods in a warehouse.**

## The module covers tasks such as:

- ✓ Maintaining order in the warehouse
- ✓ Monitoring the acceptance and shipment of goods
- ✓ Quick searches for objects of interest in large areas
- ✓ Configuring responses to any events related to an object of interest
- ✓ Tracking warehouse goods by type and category
- ✓ Videos on objects of interest over a specified period of time can be quickly found and viewed in the archive
- ✓ Tracking the movement of an object of interest in the warehouse to prevent loss or theft

# RESPONSE SCENARIOS SOLUTION ARCHITECTURE: HOW IT WORKS

**To use the TRASSIR ArUco Detector module, print out the code and physically attach it to the object of interest.**

Use a code number to quickly find the necessary goods in the archive and transfer data for processing to another module or software integrated with the CCTV system.

**The ArUco Detector is highly efficient at finding objects of interest on-site provided they are marked with codes that are fully visible to the camera.**

**TRASSIR ArUco Detector finds all ArUco codes on static and moving objects detected in the frame . Afterwards:**

- ✓ The data collected from the detected number is displayed in fancylog – a function that combines an event log; search, a single vertical timeline for archiving and events across all channels; bookmark search.
- ✓ Information about ArUco detection is converted into scripts.
- ✓ The object tree shows that there is an ArUco code in the area.

## TRASSIR ARUCO DETECTOR | SOLUTION FEATURES

- ➔ TRASSIR ArUco Detector finds objects of interest on-site using the applied marker.
- ➔ Generates a message for the operator about finding the desired object.
- ➔ Reports the object's coordinates.
- ➔ If TRASSIR ArUco Detector does not find the desired marker, all videos of the object of interest are found in the archive, the object's movement through the area is traced, and coordinates are determined for where the object was lost. Additional search measures are then taken.



# TRASSIR ARUCO DETECTOR | APPLICATION



Efficient search for objects of interest – carts, goods, and other warehouse items



Quick search for the right product among items with similar packaging



Preventing errors during shipment of goods



Ensuring prompt inventory of warehouse stocks and preventing shortages associated with late ordering of new inventory



Preventing errors when receiving deliveries of goods at the warehouse

## WHERE TO USE

### Warehouse complexes, retail spaces

- Quick search for goods in real-time, tracking types of goods, archive search

### Manufacturing

- Tracking and quick real-time or archive search for objects of interest (blanks, spare parts, finished products, etc)

### Airports, railway stations

- Tracking and quick real-time or archive search of objects of interest (trolleys, suitcases, etc)



# TRASSIR ARUCO DETECTOR | ADVANTAGES



## Cost-effective and efficient

Automatic search enables staff relief, more working time available to perform urgent duties and workflow optimization.



## Integration with existing equipment

No need to install new cameras to detect ArUco. An average or even low-performance camera with good settings is sufficient.



## Complete order in the warehouse

ArUco code enables an object of interest to be located and facilitates its return to the storage area.



## Offload analytics

Supports computing on a remote server. The licence is located on a remote server, not a local one.



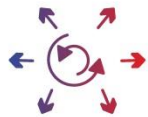
## Preventing losses

Maintaining order when goods and shipments are sent and received helps avoid mix-ups and unnecessary transportation costs resulting from replacing goods and offsetting reputational risks.



## ArUco built-in generator

Enables a number to be encrypted into a picture without the need to buy additional equipment.



## TRASSIR CMS management system

Manage multiple servers and cameras using a single system.



## Modifiable

Option to create customised solutions.

# TRASSIR ARUCO DETECTOR | FEATURES

- For efficient detection, the marker must be applied on a flat surface completely visible to the camera. The image of the marker in the detection area must be clear and in high contrast.  
The marker should be at an angle of no more than 45 degrees from the capturing area.  
The maximum tilt angle in respect to the camera is 60 degrees.
- The bitrate set on the camera should allow the video to be transmitted without artifacts.
- High resolution on cameras is contraindicated: ArUco is now being searched for in the whole picture.  
'Braking' is possible at 4M resolution.

- If an object with ArUco is in motion, the recognition range decreases by 5–25% depending on the speed of movement and exposure settings on the camera.
- Code detection is not affected by the rotation angle of ArUco in the plane perpendicular to the camera's line of sight.

## IMPORTANT!

**The largest possible marker ensures fast and accurate recognition of information. Use matte paper to print visual codes – glossy paper causes glare, which degrades the speed and quality of recognition.**

## **TRASSIR ARUCO DETECTOR LICENSING FEATURES**

**Each connection of the warehouse inventory system to the server and the addition of a new camera requires an additional TRASSIR ArUco Detector license.**



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