

The background of the entire image is a dense, overlapping field of clear, cylindrical PET preforms, likely for beverage bottles, arranged in a somewhat chaotic but repetitive pattern. A large, semi-transparent white hexagon is centered over this background, serving as a frame for the text.

**SPRANA**  
PROCESS ANALYTICAL TECHNOLOGY

**PSIS**

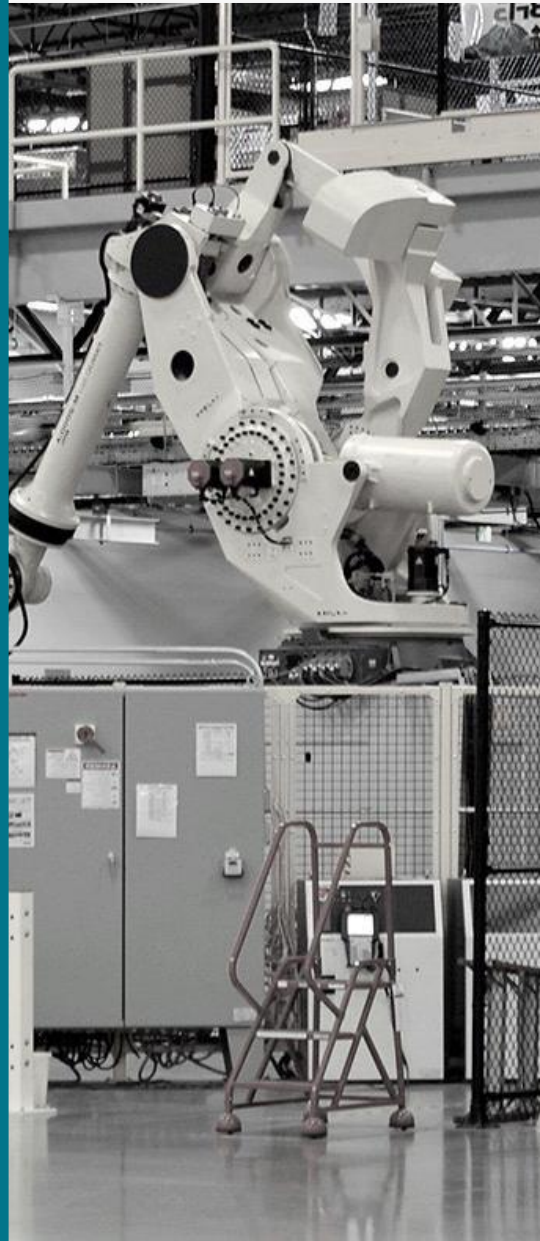
**EXPRESS ON-LINE PET PREFORM COLOR  
INSPECTION SYSTEM**



# COMPANY

**Sprana is high-tech company**

with the strong focus on creation of  
innovative on-line/ in-line/ at-line  
Industrial Monitoring and Control Quality solutions  
in Process Manufacturing based on  
Machine Vision and Applied Spectroscopy.



# MACHINE VISION SOLUTIONS

We provide our clients

a combination of

**Hardware and Software Machine Vision**

solutions in such areas as:

- Automatic Defect inspection
- Process Control vision systems
- On-line/In-line/At-line Embedded solutions
- Product and Process analysis
- Customized Inspection systems

# WHY MACHINE VISION

## INCREASE PROCESS CONTROL

Easier tracking and tracing throughout your operation.

## INCREASE QUALITY

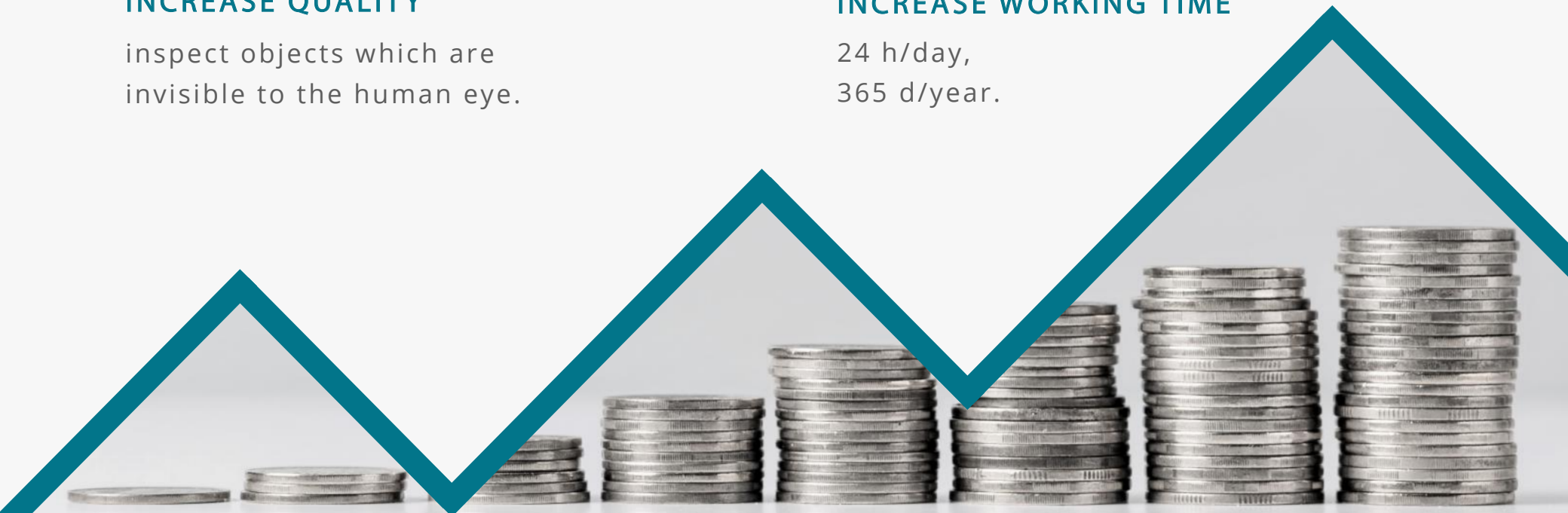
inspect objects which are invisible to the human eye.

## INCREASE PRODUCTIVITY

Vision system allows to inspection of hundreds, even thousands of parts per minute.

## INCREASE WORKING TIME

24 h/day,  
365 d/year.



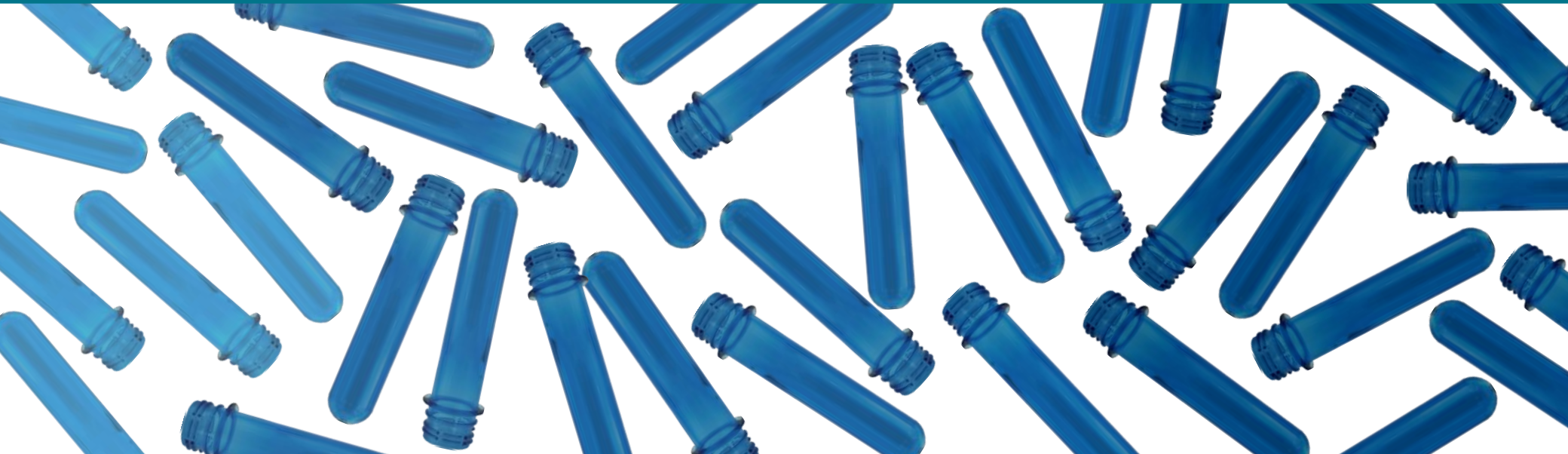


EXPRESS ON-LINE PET PREFORM COLOR INSPECTION SYSTEM  
(PSIS)

# MAIN PROBLEM

Color of PET preforms may change slightly and gradually  
(little by little).

It is difficult and sometimes impossible to see or recognize  
such insignificant changes by human eye.



# SYSTEM DESCRIPTION

## PET preforms color inspection system

(PSIS) is designed to enable automated preforms color stability check directly on the production line by which preforms are being transferred from the moulding machine to holding containers.

## PSIS is a machine vision system

which continuously trace images of manufactured preforms on-line, analyzes these images and provides the color of manufactured preforms and their color shift.



# TYPES OF PET PREFORMS

The color range of PET preforms is divided into 4 different categories:



**1. Clear PET preforms**  
preforms are transparent without a color.



**3. Dark**  
dark preforms that transmit natural light through one wall.



**2. Colored**  
light preforms with paint, but transparent to naked eye.



**4. Opaque**  
preforms that do not transmit natural light at all.

A color discrepancy to be detected by PSIS system is assigned individually for each category, expressing it as a difference between the benchmark and non-conforming color.

**Currently, color control of ALL 4 CATEGORIES of PET preforms is CONFIRMED AND TESTED.**



# FEATURES

**COMPLETE  
INSPECTION  
OF PREFORMS  
WITH VARIOUS:**

shape,  
size,  
color,  
opaque,  
translucent,  
transparent

**EASY INTEGRATION**  
into production line

**USER-FRIENDLY**  
program interface

**INTEGRATED OPERATION**  
with control room of the factory

**ROBUST, ENTIRELY INDUSTRIAL  
SOLUTION**

**EXPRESS INSPECTION**  
on the production line

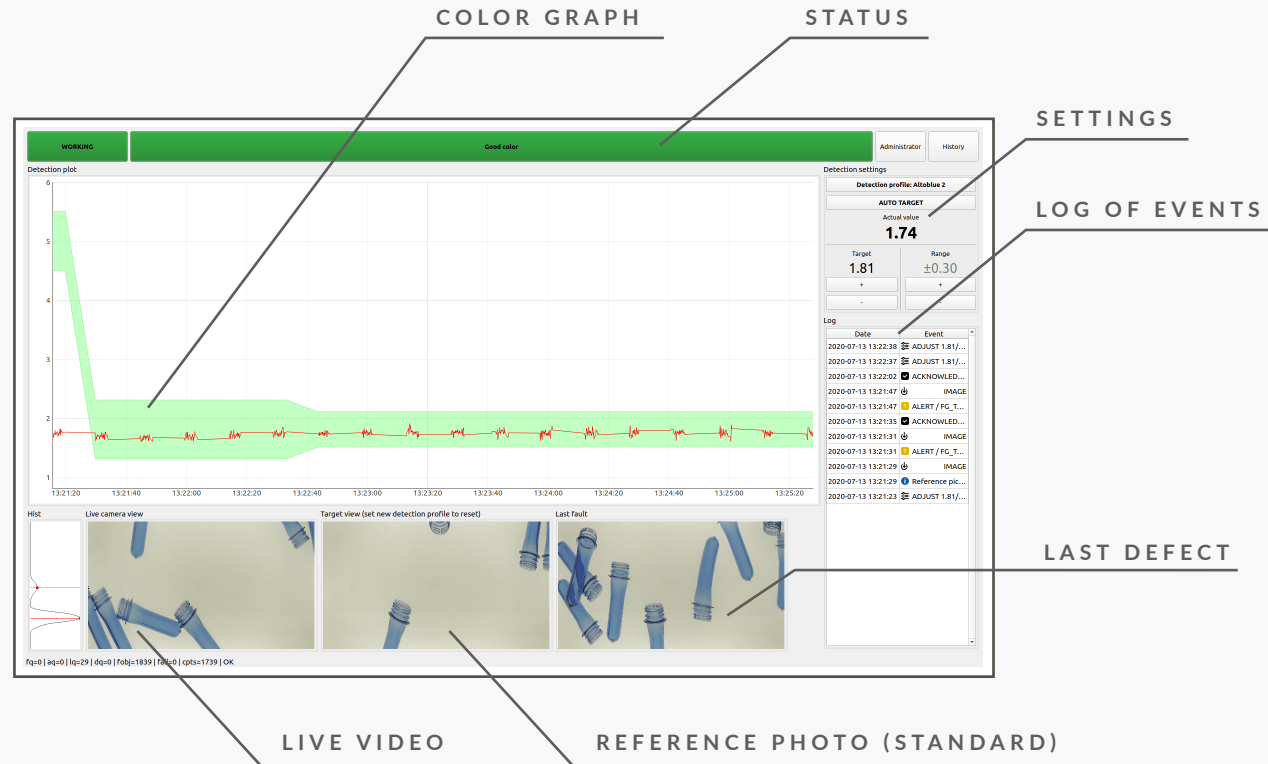
**CONTINUOUS WORK**  
24/7/365

**PRE-DEFINED PROFILES**  
that are suitable  
for inspection  
of common types  
of PET preforms

# PROGRAM OVERVIEW

Program interface is user-friendly and simple.

Special skills or education are not required for program users.



# PREFORM COLOR OUT OF RANGE ALERT

When the color of PET preforms is good, the status button is green.

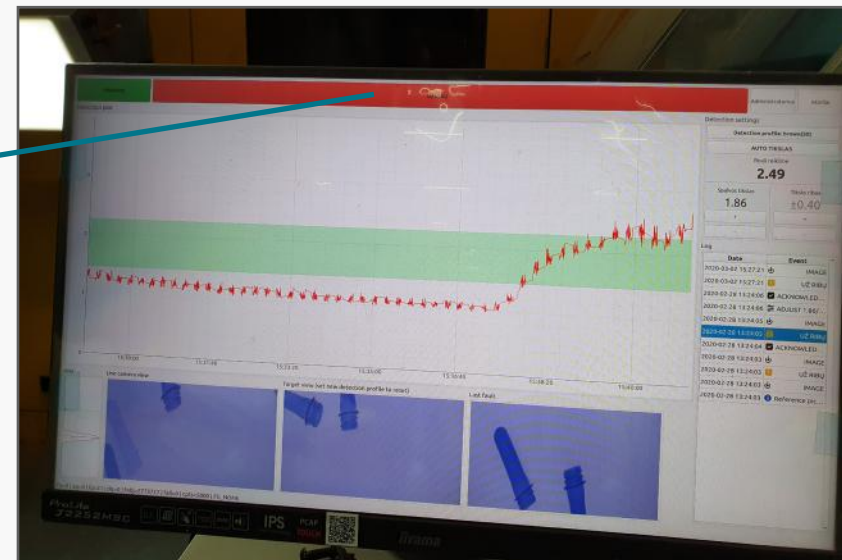
When the color of performs got out of the control limits

it triggers program alert and

status button turns red.

All related information records into log of events and history.

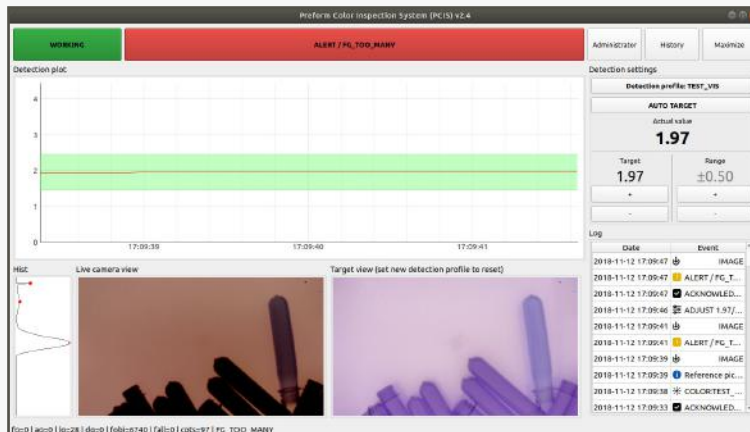
Alert could be accompanied with signal light and sound alarm.



# OTHER ALERTS



- Lighting is improper.  
The program alerts when lighting becomes too bright and too dark or camera has incorrect light settings for preform inspection.

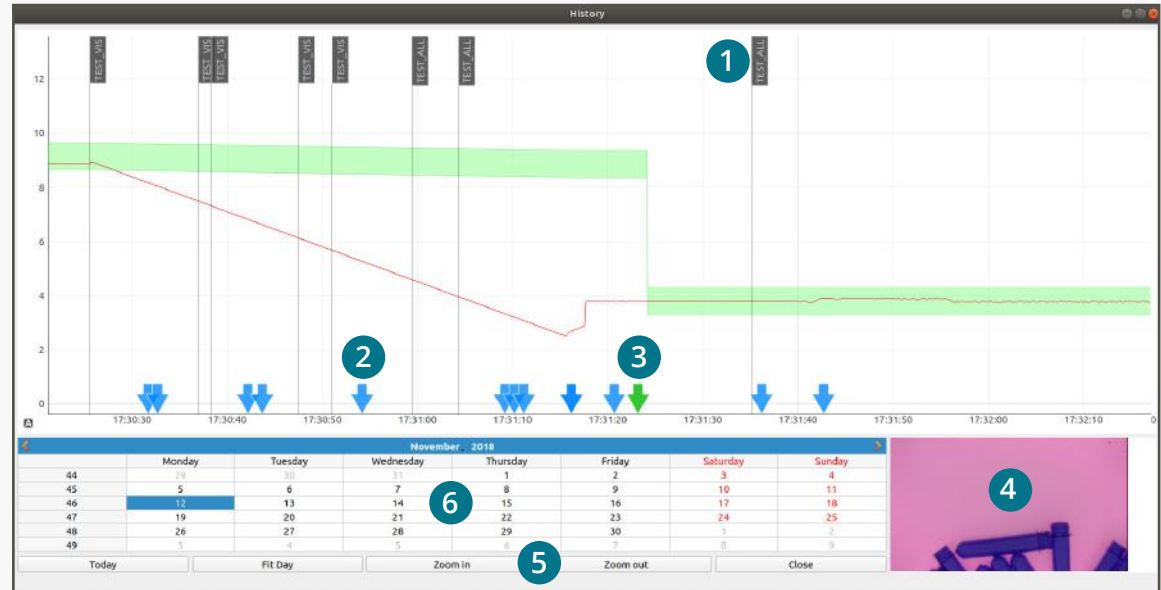


- Foreign object appears onto production line.
- A preform with very different color appears.
- Large amount of preforms stuck onto production line.

# HISTORY

All major information related with PSIS operation records into history.

History page looks like a scalable log of events placed on timeline.



1 Profile activation label. Indicates when and which profile was applied.

2 Alert tag.

3 Active alert tag.

4 Photo from camera according to active alert tag.

5 Scaling buttons.

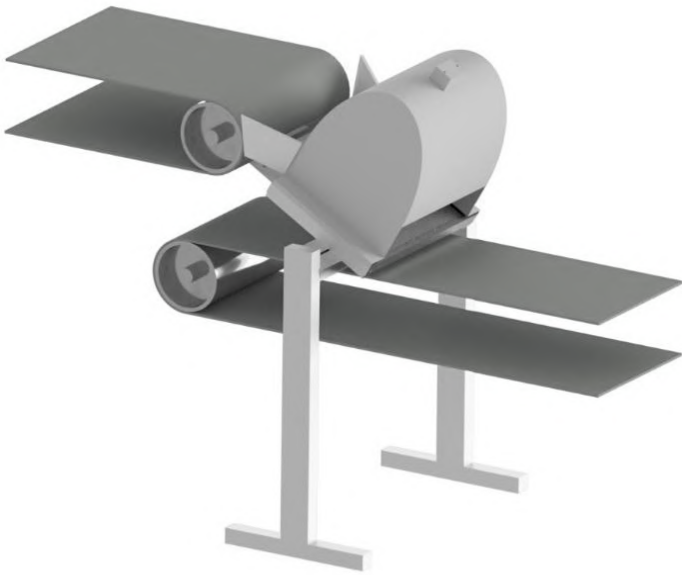
6 Calendar.

# INSTALLATION

## PSIS equipment

is to be placed over the production line so that recently made preforms from the moulding machine would slide through PSIS equipment onto production line which then transfers preforms to holding containers.

Usually PSIS installation and configuration takes up to 2 days.



# SYSTEM CONTENTS

## Detection Unit

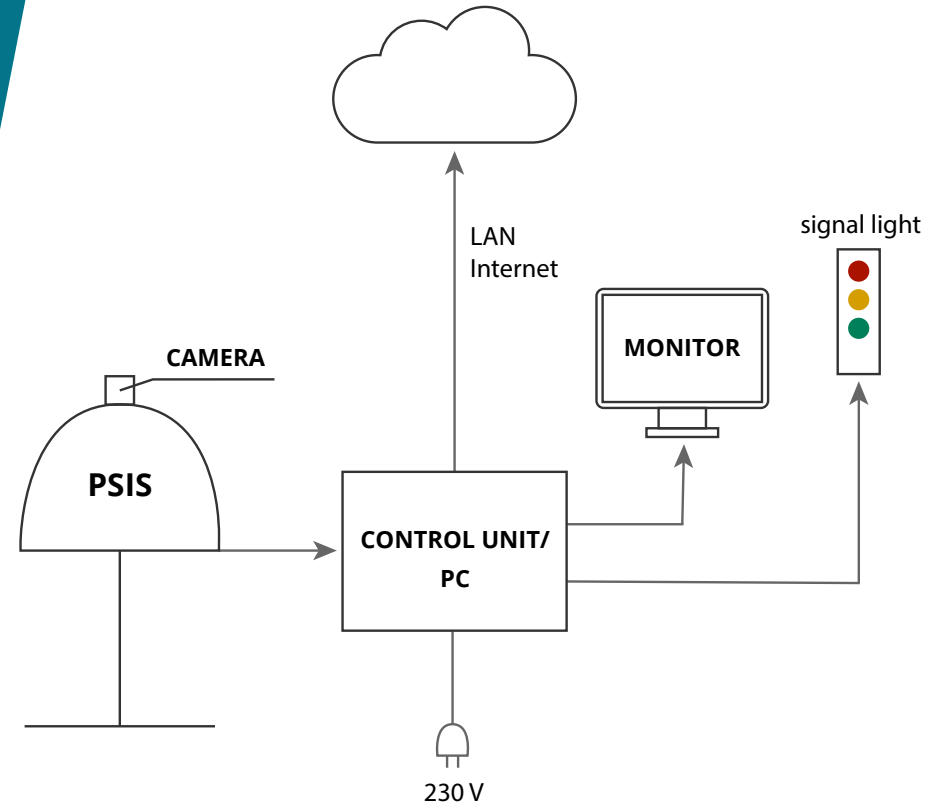
with industrial camera

## Control Unit / Industrial PC

CPU Intel Core i5, 4 GB RAM,  
Linux (Ubuntu)

## Monitor

TFT touchscreen, 21'



# SYSTEM CONNECTION SCHEME

# HOW PSIS HELPS TO REDUCE MANUFACTURING EXPENSES *and increase revenue of your factory*

## Maximization production line efficiency:

Faster manufacturing with fewer defective products and lower labor costs.

## Defect detection at THE VERY BEGINNING of production process:

Defective preforms are immediately detect in early stage of production, thereby scaling down amount of works with obviously improper products.

Fast payback on initial investment.





# INSTALLATIONS



## RETAL BALTIC

PET preform moulding plant,  
Fabriko st. 14A, Lentvaris,  
Lithuania.

## RETAL UKRAINE

PET preform moulding plant,  
Dnipropetrovsk, Ukraine.

## PUTOKŠNIS

PET preform moulding plant,  
Aerouosto str. 35, Šiauliai,  
Lithuania.

DESCRIPTION OF WORKS	TERM
Production time	<b>from 3 months</b> <small>(depends on quantity and availability of components)</small>
Equipment installation and connection	<b>1-2 working days</b>
Calibration of equipment	<b>1-2 working days</b>
Configuration of software and hardware components	<b>1-2 working days</b>
Testing and delivery of equipment and software	<b>1 month</b>



# CONTACT

Know More About Us

Feel free to contact us right now



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**SPRANA**  
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**thankyou**