



Elektrik Elektronik San. Tic. A.Ş.

*Industrial Automation and Transportation Systems*

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# About Us

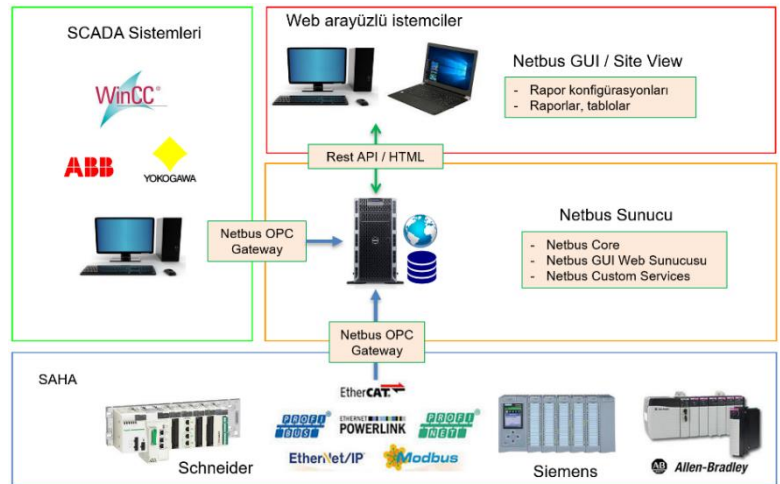
Founded in 2014, our company is specialized in design, planning, and system function analysis in the energy automation sector. Our mission is to follow technology and industrial innovations, provide high standards of products and services, understand customer needs correctly and provide the best service for our clients.

In 2015, we recruited a team that has been working in the glass sector for 12 years. Several key projects included Float Glass Cold End Repair and new line turn key projects in Trakya Cam, Saint-Gobain Glass Mexico and in Russia. Our team is experienced in cutting bridges control, ribbon optimization software, conveyor glass plate handling and stacker design and control.



*Saint Gobain Özel Kesim Hattı*

In 2016, we began developing automation systems for Internet of Things (IoT) and Industry 4.0 use cases. As an example, we collect all data from Trakya Cam TR2 line with a Netbus data collection core system we developed and report via web browser.



*Netbus Sistem Mimarisi*

In 2018, we started working on the commissioning and field acceptance tests for the Security-Comm section of 43 stations in the CR3 Marmaray Project.



*Marmaray Metro Treni*

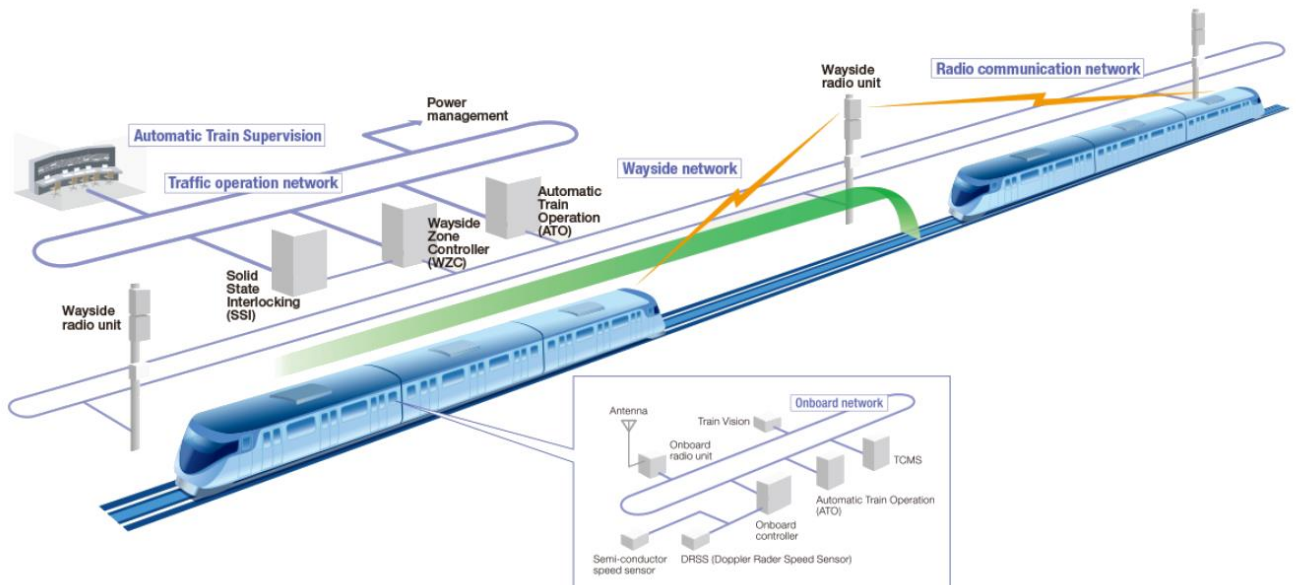
# Expertise

## Mobility Field Services

- Factory Acceptance Tests (FAT)
- Site Acceptance Tests (SAT) on railway systems - CBTC, CCTV, PID, PA and CLOCK

## CBTC technology

- Network communication (BP, WT, ERTMS)
- Transmission Network Systems commissioning (TNS)



CBTC System Overview

## High Speed Line Railway Project - Signalization

- Follow-up of the configurations prepared for the correct communication of signaling equipment, related equipment and version.
- Control and monitoring of information acquisition and indoor signaling software.
- Performing and reporting of SAT-1 and SAT-2 tests in rail circuit (TCM100), IXL (Westrace MKII), Trusses and Ads.



### CCTV System

- Configuration of CISCO switch configuration
- Connection and control of CCTV cabinets with TNS
- Parameterization of servers

### Public Announcement

- Control of software and hardware structures in the system (ASL systems)
- Control of PA cabinets
- Installation and version updates of



the MPS system

Panel, Clock and Announcement System

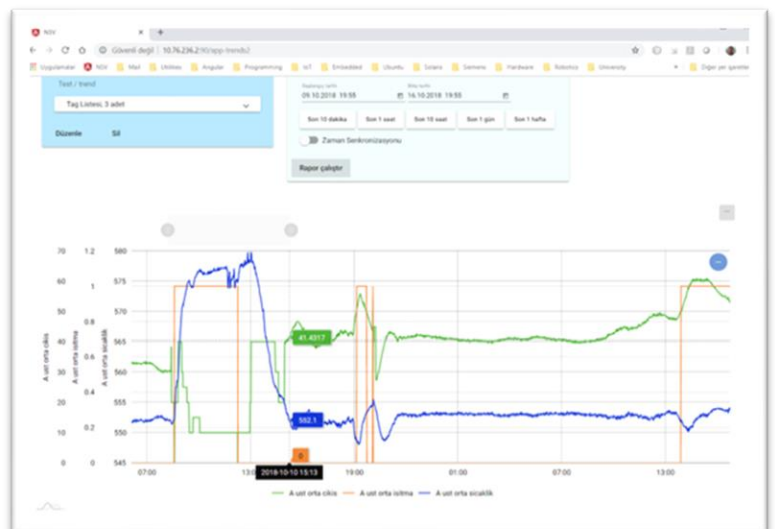
### Data collection in all areas of production

- Control of software and hardware structures in the system (ASL systems)
- Control of PA cabinets
- Installation and version updates of the MPS system



### NETBUS software, data collection and reporting

- Netbus Core (Data collection core software)
- Netbus GUI: Web-based reporting interface
- ERP, MRP and integration with other platforms
- MQTT, REST or SQL integration



Netbus Trend Graphics Screen

## Industrial Automation

- PLC / SCADA Solutions
- System Analysis and Design
- Project planning, signal and system logic creation
- RTU (Remote Terminal Unit) and PLC solutions



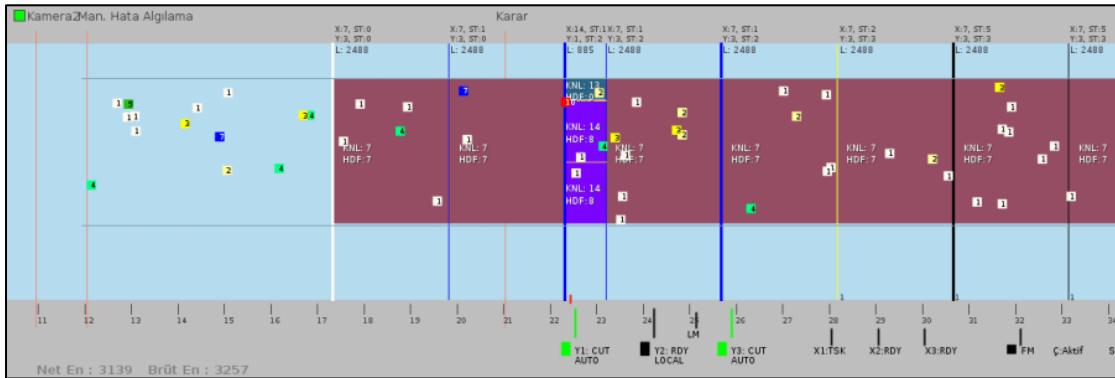
PLC Control Cabin

## Flat Glass Cutting Line Automation

### Line Optimization Software

It is the software that ensures the production with minimum loss depending on the defects in the glass and production dimensions.

Defects in the glass coming from the furnace are taken to our optimization system via optical camera. According to the dimensions and quality definitions to be cut, our system decides the least loss plates continuously by real-time processing.

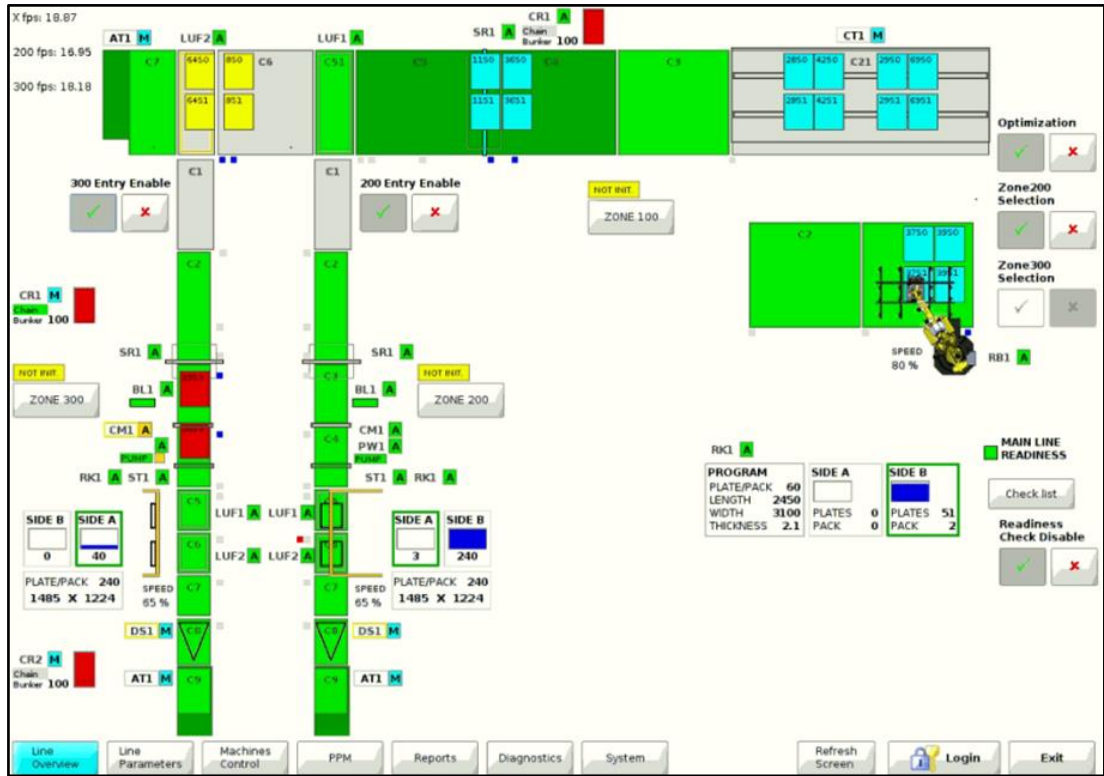


Ribbon Optimization Screen



## Plate Tracking Software

Monitoring the discrete glass plates on the conveyor line in PLC and visualizing in SCADA. We implemented this system with PLC and Java Automation Control computers in different places

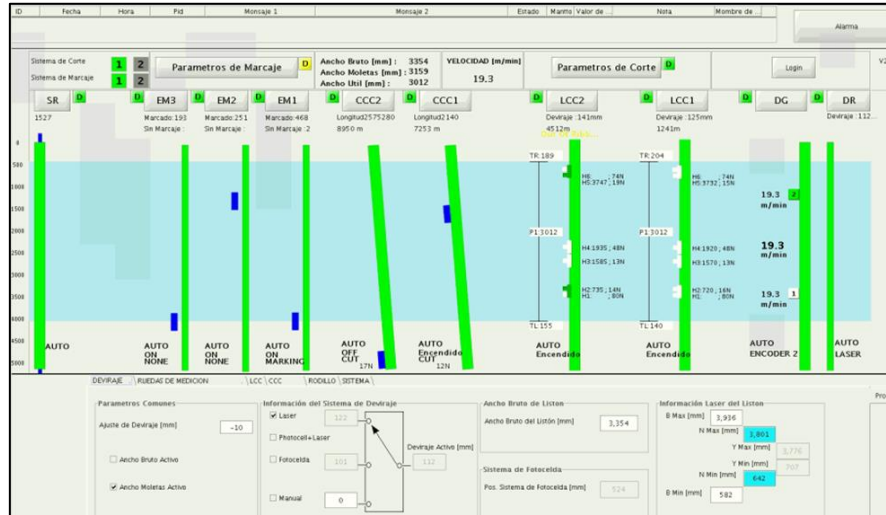


Offline Cutting Line SCADA

## Cutting Bridges and Error Marking

Our flat glass cutting bridges system, a form of flying saw applications, draws plate lengths from the optimization system synchronously with the line speed with diamonds. This system, which we run with Java Automation Control computers, provides synchronization between 3 bridges on a single computer.

The error marking system also operates on a computer. The errors that come with 3 independent bridges are shared between bridges and the paint is sprayed. Error selections manually or automatically via optimization.



*Ribbon Glass Cutting System SCADA*

## Machinery for float lines and offline cutting

- Belt Conveyors
- Roller Conveyors
- Crushers
- Cutting bridges
- Stackers and Robot integration
- Motor and drives retrofitting
- Belt conveyors, roller conveyors
- Snapping machines
- Cullet machines
- Pop up tables
- Stackers and Robot integration



*Stacker*



*Cutting Bridge*

# References

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## Trakya Cam Sanayii

### Automation software

- TR1 and TR2 Flat glass cutting line optimization software
- Plate tracking and glass collection automation and reporting
- SAP integration
- Trakya Cam TR2 line data acquisition and integrated reporting software Netbus

### Mechanical systems

- Cold repair of float line cold end
- Cutting bridges
- Glass plate turn tables



## Saint-Gobain Glass-Mexico

### Automation software

- TR1 and TR2 Flat glass cutting line optimization software
- Plate tracking and glass collection automation and reporting
- SAP integration
- Trakya Cam TR2 line data acquisition and integrated reporting software Netbus

### Mechanical systems

- Cold repair of float line cold end
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## Zorlu Energy Group



- SCADA redundancy commissioning
- SCADA - Inam EAM integration of work orders and integration e-mail system.



## Marmaray Metro Line - İSTANBUL



Commissioning, SAT1 (Mounting tests), SAT2 (Commissioning tests) and SAT3 (Inter-system tests) for the stations located between Gebze and Halkalı

- Public Addresses (Speaker system)
- CCTV Camera systems
- PID; Public Information Display, information panels
- Clock system
- CBTC; Communication-Based Train Control



## Train Transportation Line - Samsun-Kalın



- Commissioning of communication systems for ERTMS level 0 and level 1
- CBTC; Completion of Field Acceptance Tests (FAT) for Communication-Based Train Control.

## Konya-Karaman-Ulukışla and Yerköy-Yozgat High Speed Line Railway project



- Prepared configurations or the correct communication of the signaling equipment to Siemens Ruggedcom switches and making improvements on the configurations for unforeseen problems, and checking the accuracy of the connections with network tests.
- Checking the connections and communications for the SDH network connecting all stations and auxiliary buildings (OC) and making changes when necessary.
- Conducting and reporting all communication tests in line with the relevant procedures.