

*Gridbols*



**MADE IN BHARAT**



# FULL STACK ROBOTICS COMPANY

GLOBAL ROBOTIC SYSTEM MANUFACTURER

## ABOUT

Gridbots Technologies was established in mid of 2007 in Ahmedabad-India with a focus on research and development in the field of indigenous product development and provide solutions to various industries, Government Organisations and research establishments.

Company is head-quartered in Ahmedabad and has offices in Pune, Delhi and Chennai.

We strive to become one of the best and most innovative robotics company in the time to come and serving globally.

Our focus has been on concurrent research and development in the advanced robotics and AI.



# AI for Solar Glass, Flat Glass & Container Glass

Latest trends and practical use  
Gridbots Technologies

# Agenda

- Why AI matters for the glass sector
- High-value use cases by sub-industry
- Tech & data requirements



# Why AI matters for glass manufacturing



- Glass is capital- and energy-intensive – small yield gains scale.
- Visual inspection, process control and maintenance are repetitive, high-volume tasks well-suited to AI.
- Sustainability pressure and energy cost volatility make optimization urgent.

# Market context



- Growing adoption of vision AI and predictive maintenance in heavy industries.
- Rising regulatory and sustainability targets for energy and waste reduction.

# High-level trend map



- Computer vision & automated inspection
- Predictive maintenance & anomaly detection
- Process optimization & adaptive control (including digital twins)
- Robotics & smart handling
- Coating and surface quality AI

# Use case: Automated visual inspection



Detect bubbles, scratches, contaminants, coating non-uniformity, wall-thickness in containers.

Real-time classification + severity scoring.

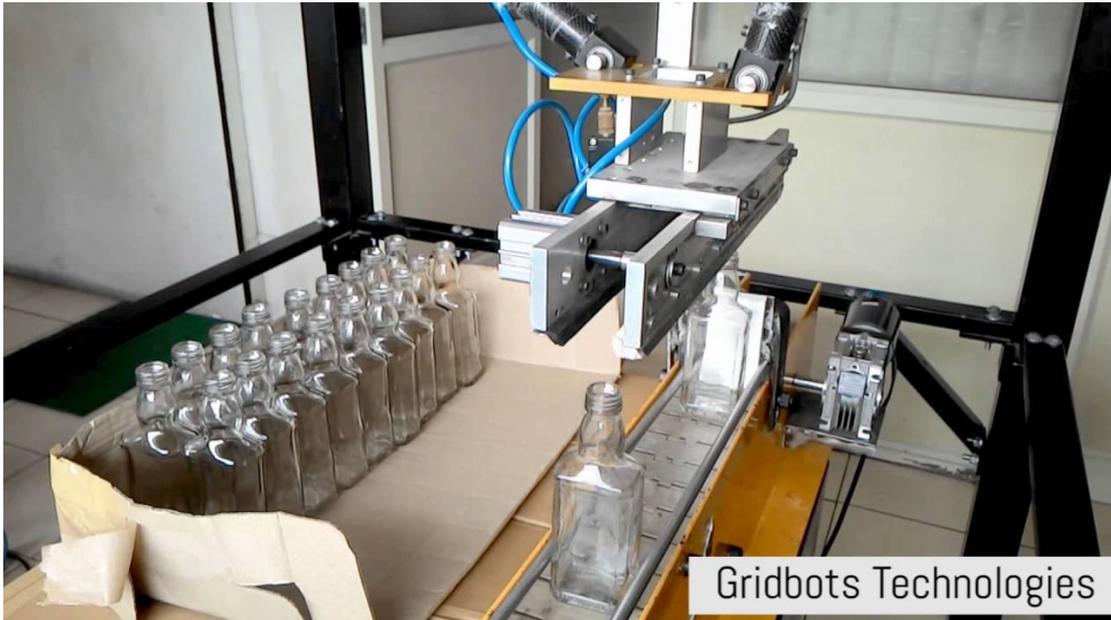
Tech: high-speed cameras, edge inference, CNN/transformer models.

# Use case: Adaptive process control & digital twins



- Digital twins simulate float bath, cooling curve, coating deposition.
- AI tunes process parameters for thickness, stress, optical properties.
- Benefits: less rework, lower energy use, faster stabilization.

# Use case: Robotics & smart handling



- Vision-guided robots with adaptive grippers reduce breakage.
- AI-driven path planning for irregular or large panes.

# Use case: Coating, low-E & nanocoating inspection



- AI inspects coating uniformity, pinholes, adhesion issues.
- Multispectral/IR imaging ensures tighter control of solar glass performance.

# Tech stack & data needs



- Cameras (line scan, spectral, thermal)
- Edge inference devices (NVIDIA, Intel, Coral)
- Time-series DB, MES/SCADA integration
- Models: CNNs, transformers, physics-informed ML



# Risks & mitigation



- False positives/negatives → human-in-loop
- Integration delays → modular APIs
- Workforce resistance → training & reskilling

# Case studies



- Vision AI reduced inspection time by 80% in float glass.
- Predictive maintenance cut furnace stops by >50% in container plant.

# Thanks

[contact@gridbots.com](mailto:contact@gridbots.com)

[www.Gridbots.com](http://www.Gridbots.com)

+91-9924826584