



# HYCAST<sup>®</sup>

By  Hydro

## Hycast<sup>®</sup> Insight

*Game Changing Camera Robot – An unexpected journey*

Trondheim April 2<sup>nd</sup> 2025

Ola Furu

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Hycast -Who are we?

# HYCAST®

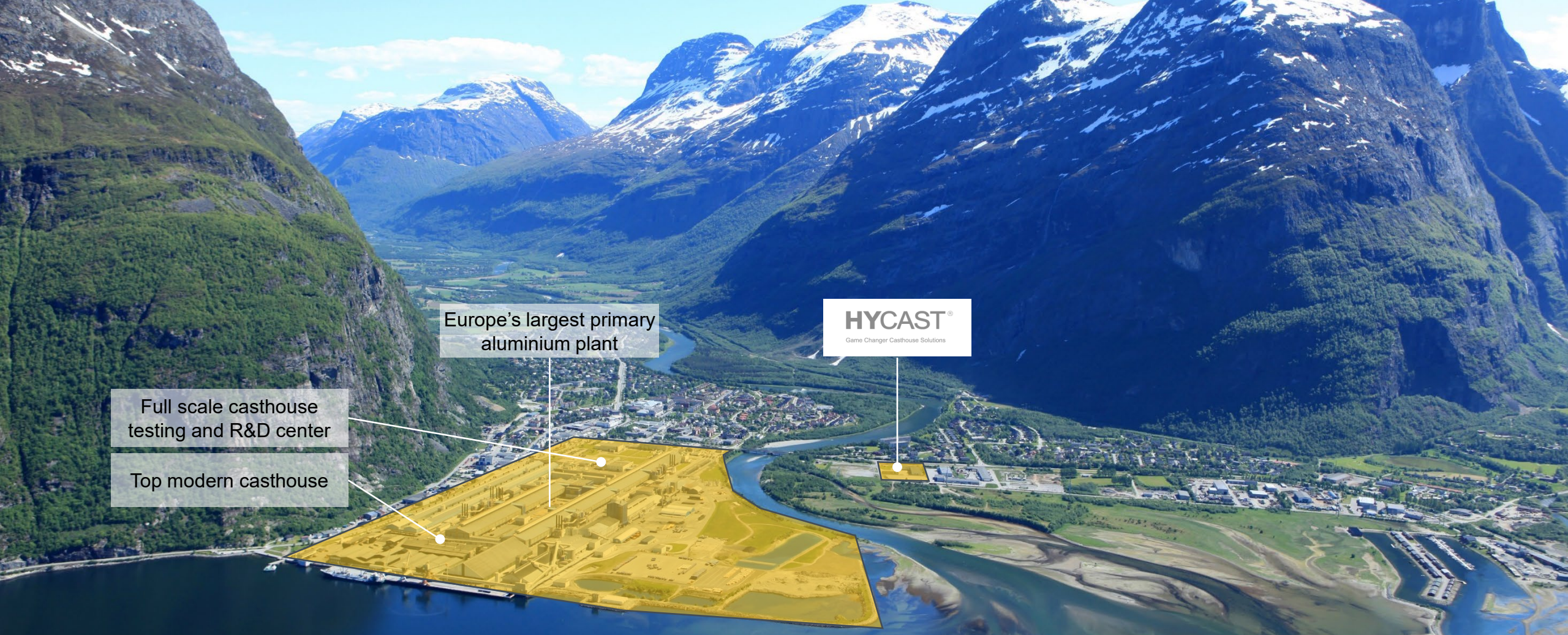
Game Changer Casthouse Solutions

A technology  
company developing  
game changer  
casthouse solutions



NORGES SMARTESTE  
INDUSTRIBEDRIFT  
Vinner 2024





Europe's largest primary  
aluminium plant

**HYCAST®**  
Game Changer Casthouse Solutions

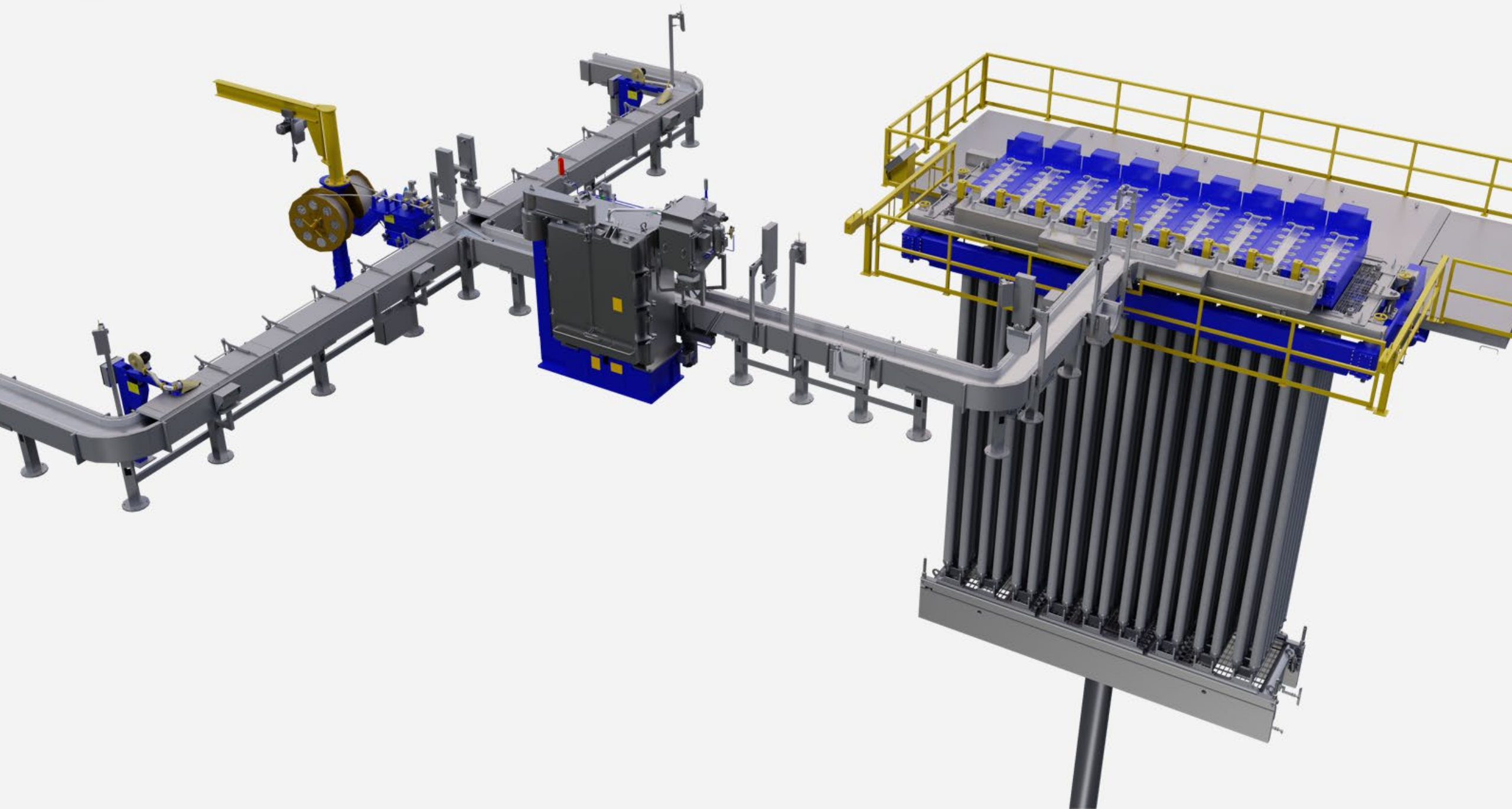
Full scale casthouse  
testing and R&D center

Top modern casthouse

Aluminium Valley Sunndal – a unique location



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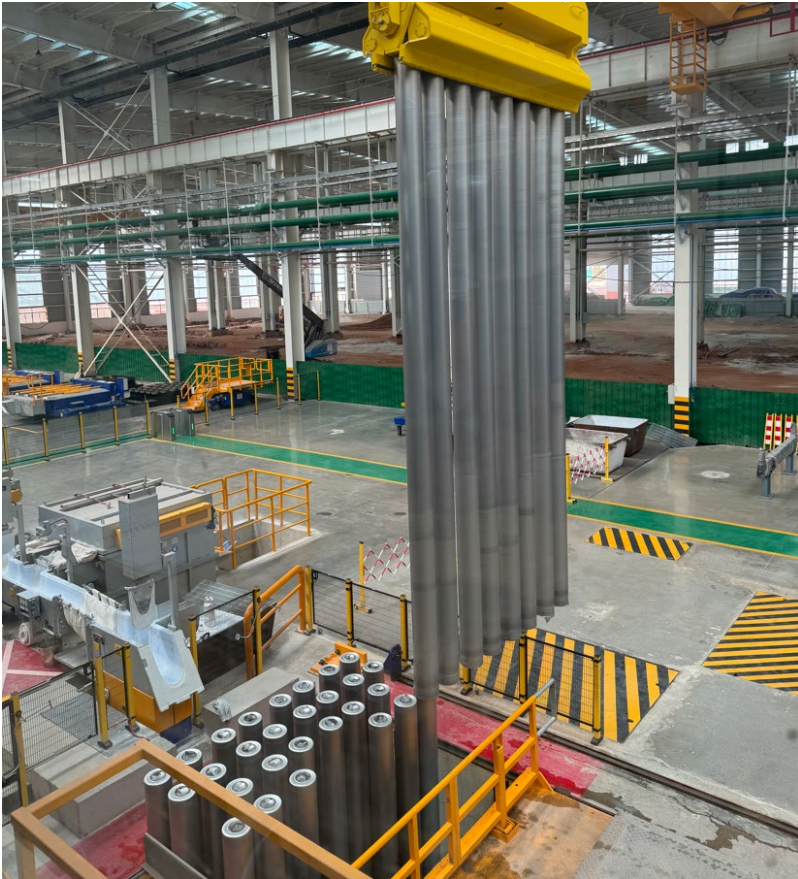






# Fully Automated

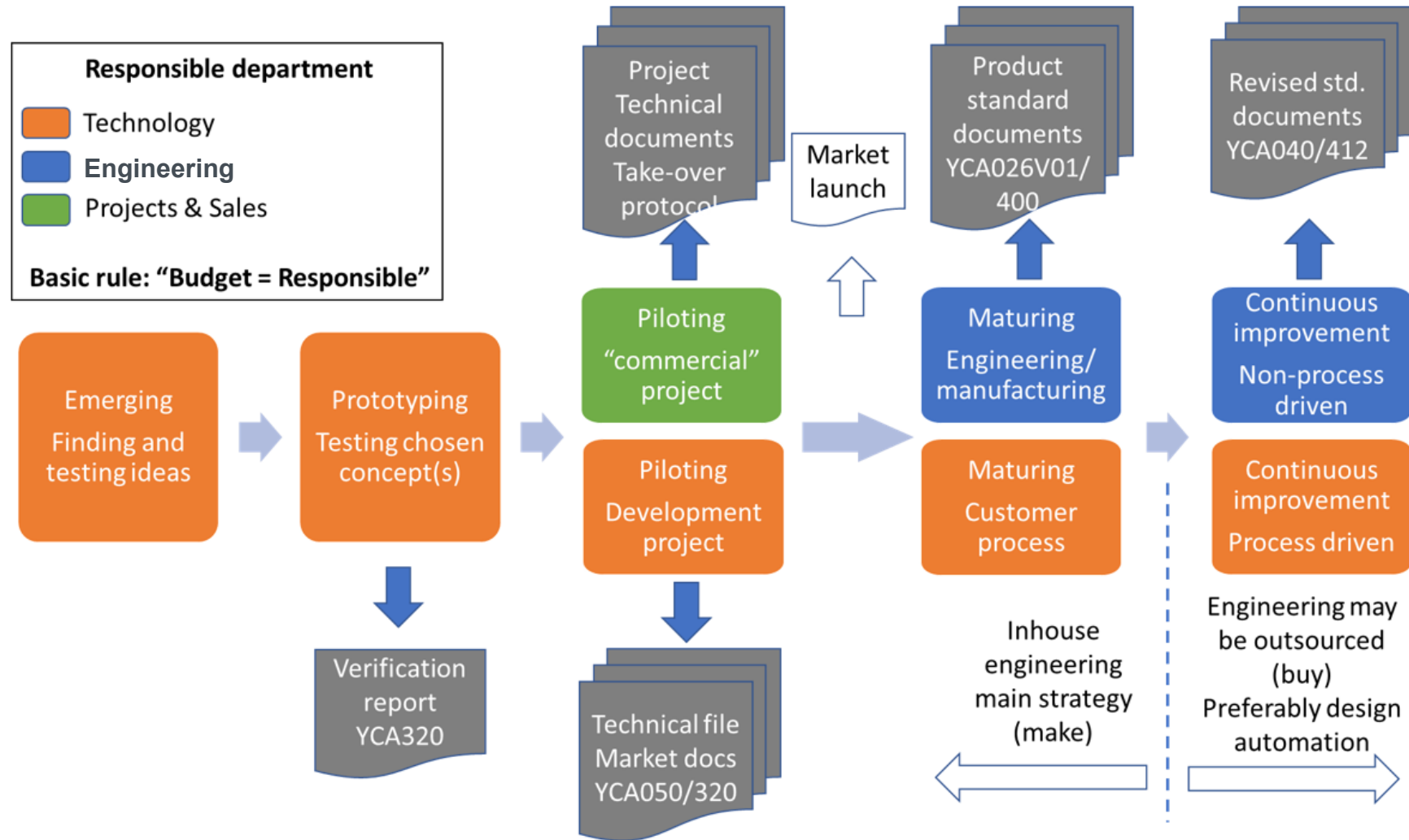
Hands-free casting



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# Background

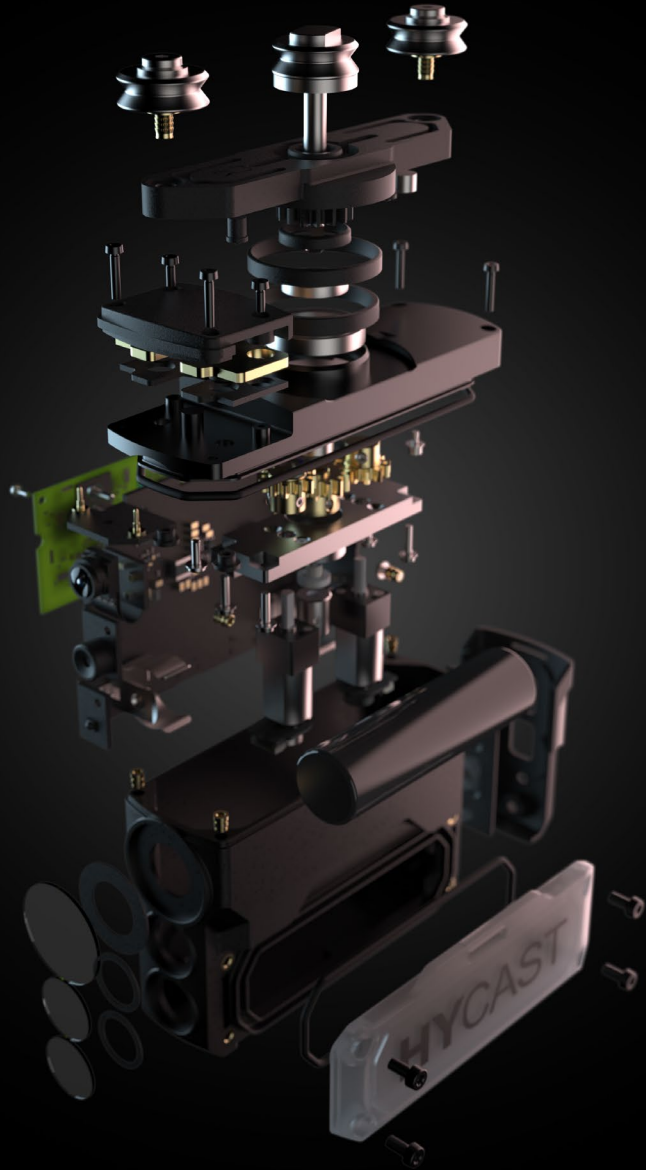
# Technology Development in Hycast



**Figur 2: Livsløpet til et produkt i Hycast. Utviklingsprosjektet avsluttes etter piloteringsfasen. Overgangen mellom hver fase er «hold point» som krever beslutning i ledergruppen.**



An Unexpected Journey

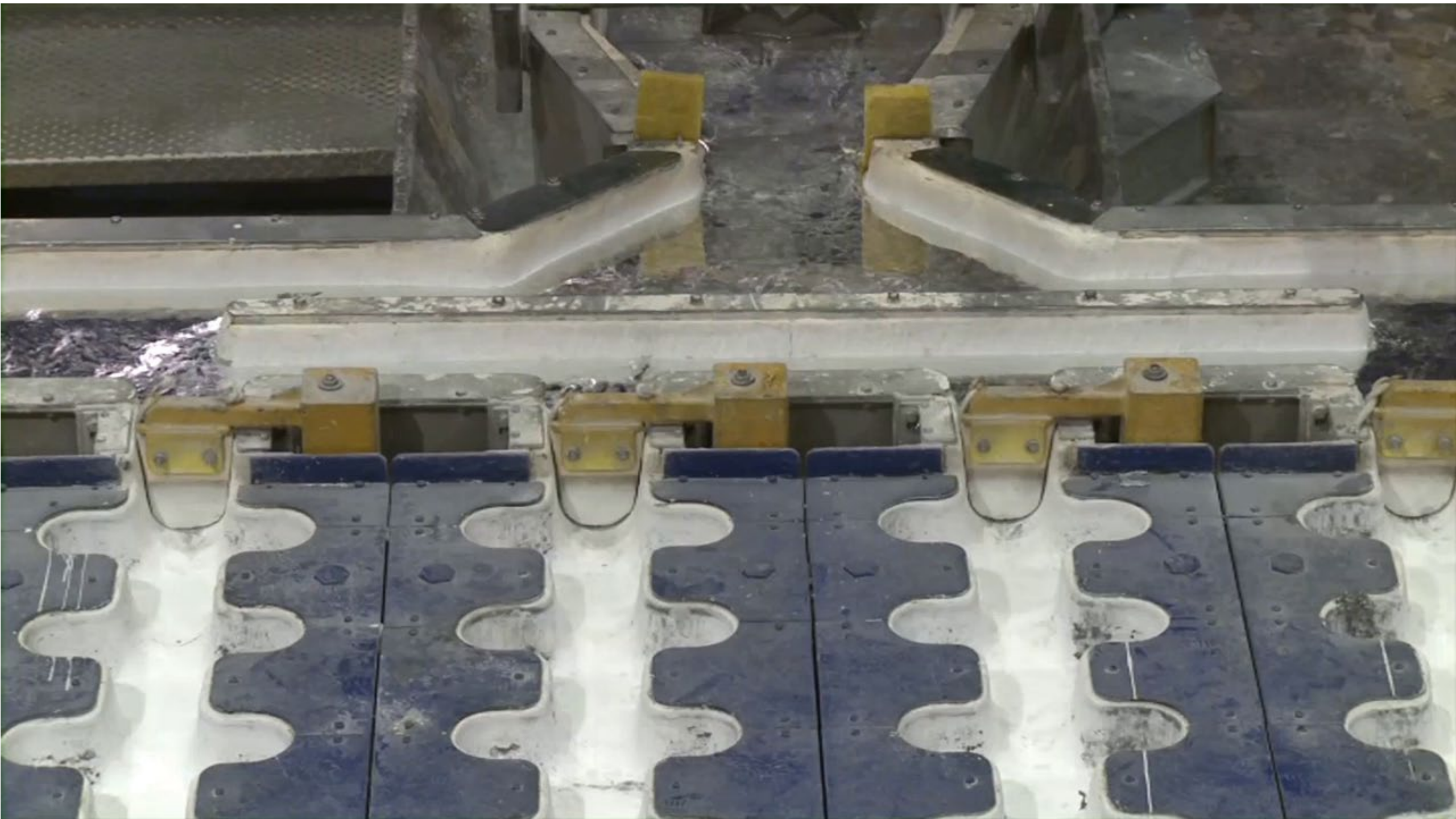


- Camera Robot
- Docking Station
- Human Machine Interface (HMI)

Continuous monitoring of the billets or slabs during casting



HYCAST<sup>®</sup> —  —  
INSIGHT



# Background

Why?

Why do you need Hycast<sup>®</sup> Insight?

- **Increased safety**
- **Remove operators from the casting pit**
- Enable recording and documentation of quality and safety incidents
- Detect bleed outs early
  - Limit material damage
  - Reduce probability of molten metal explosions
- Continuous and automatic monitoring of billets and slabs



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# Hycast<sup>®</sup> Insight System

# Main Features



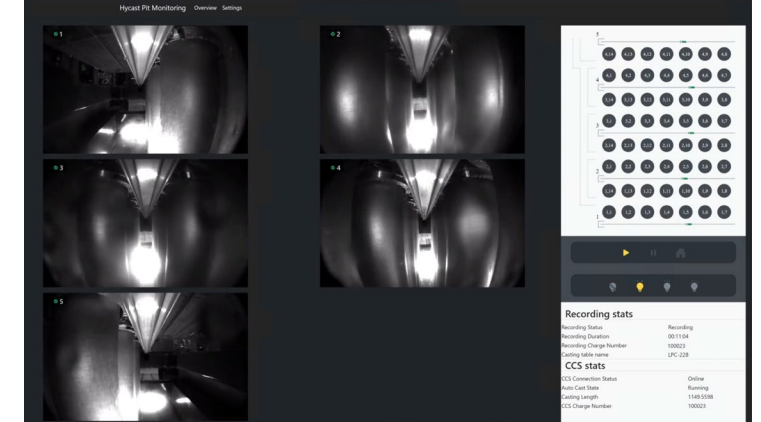
## Camera Robot

- Compact size
- Battery operated
- Wi-Fi communication
- Mounted on rail
- HD-camera (1280x800)
- Thermal sensor (32x24)
- Light source



## Docking Station

- Protects the robot
- Charges the robot
- One set of rails, robots and docking stations can be used on multiple casting tables
- Easy to change casting tables through clip mounted rails



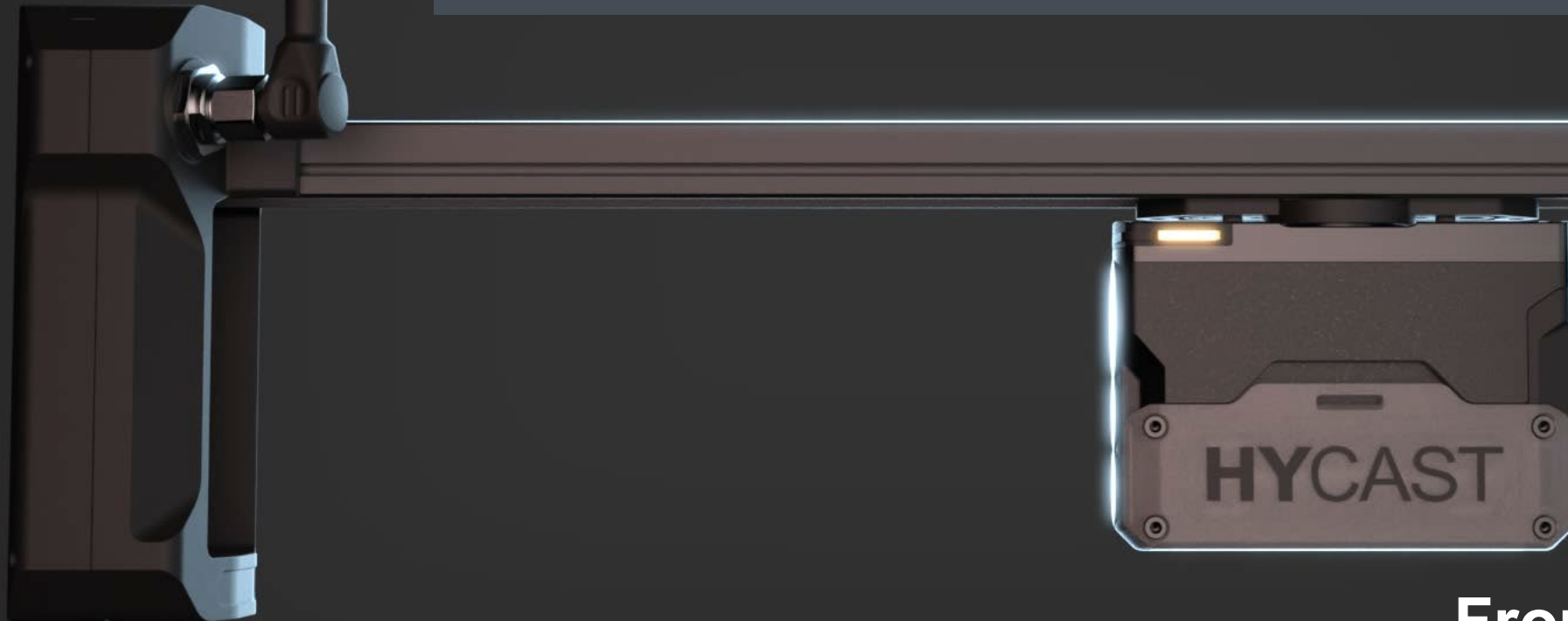
## Human Machine Interface

- Overview of all cameras
- Overview of the positions of all robots
- Controls for auto-mode (start auto, pause or go home) and manual control
- Controls for light

## Challenging environment

- Water
- Steam
- Dust and dirt
- High temperatures
- Wi-Fi signal

- Small size to fit between the sections on the casting table
- Retrofittable on existing Hycast equipment
- Portable so it can be moved between casting tables
- Durable system to handle wear and tear

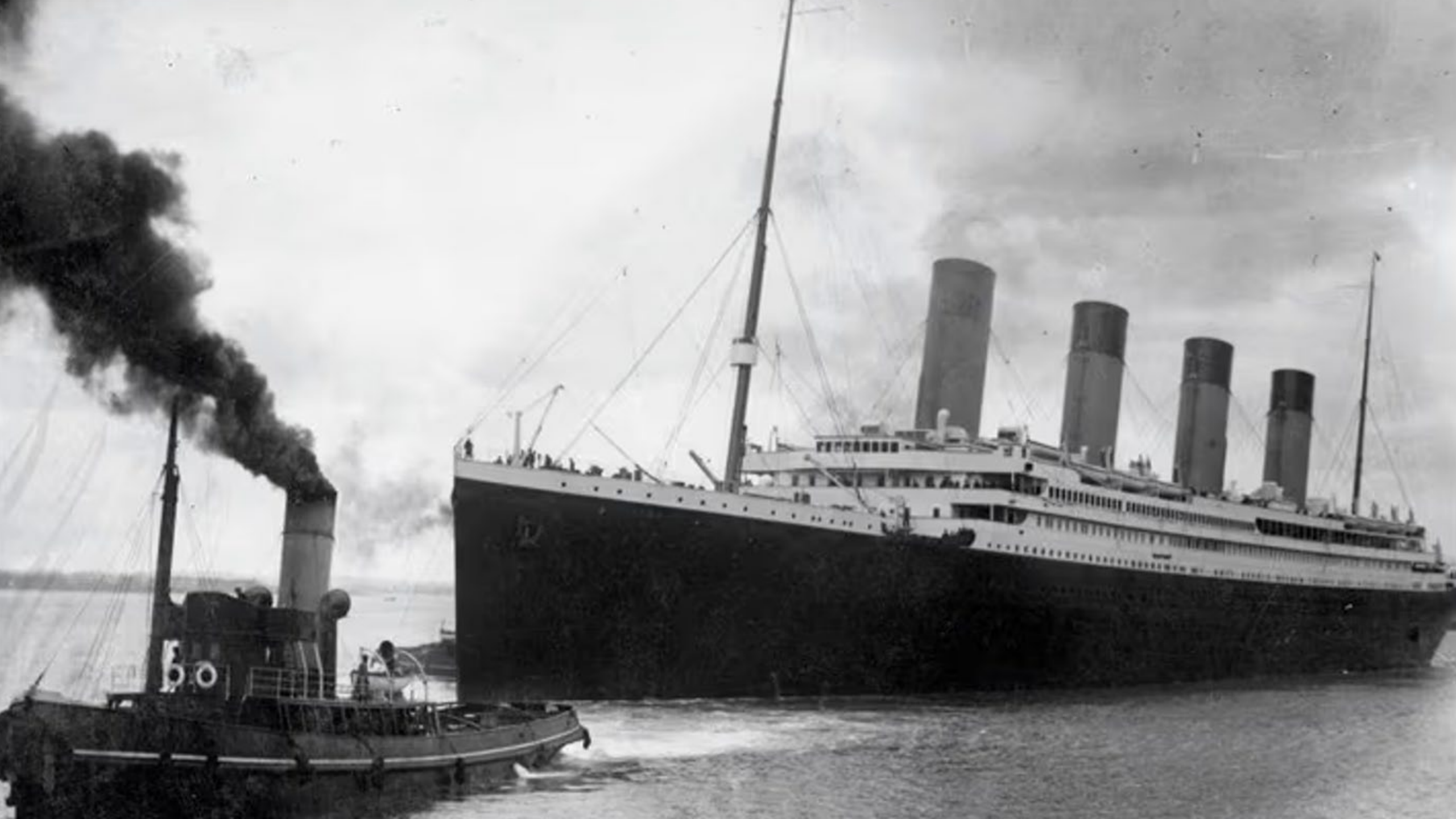


**From Idea to Pilot**  
Challenges and design

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# Pilot

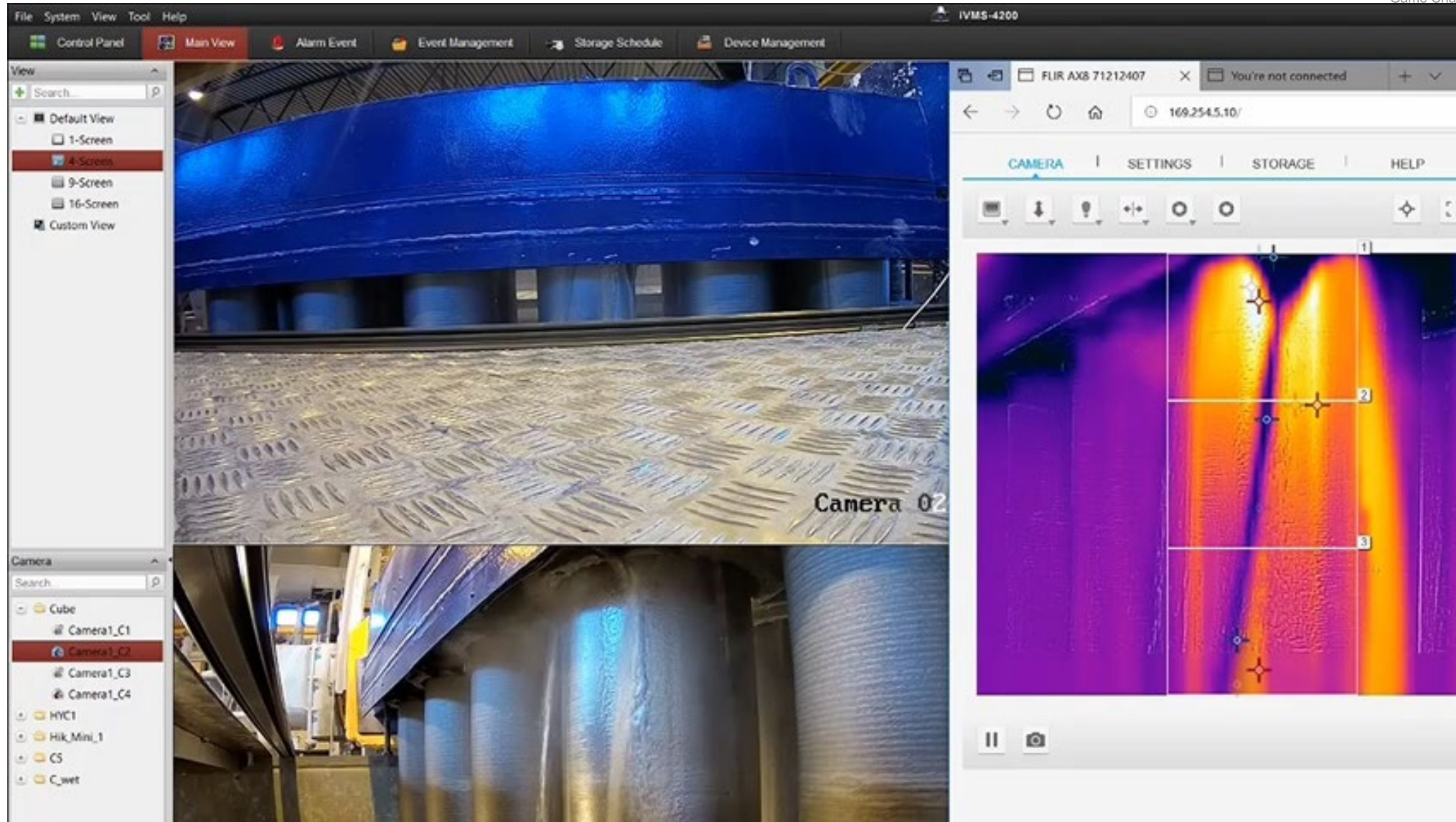
Status and Challenges

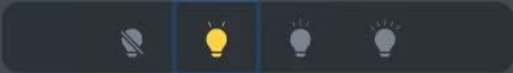


# Forced Bleed-out in early phase development

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Recording stats

Recording Status	Recording
Recording Duration	00:36:44
Recording Charge Number	null
Casting table name	Cassopolis LPC-228

CCS stats

CCS Connection Status	Online
Auto Cast State	Running
Casting Length	3588.335
CCS Charge Number	100023

# Pilot

## Status & Experiences

### Main Issues found:

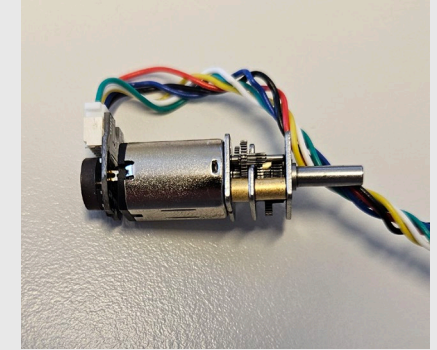
- Corrosion
- Slippage/poor friction
- Water intrusion
- Motor and gear failures

### Experiences:

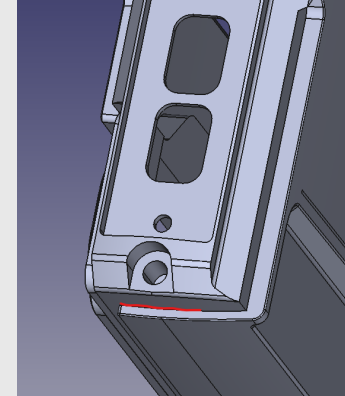
- Wi-Fi and communication
- Improve software
- User/operator feedback
- Visibility and video quality



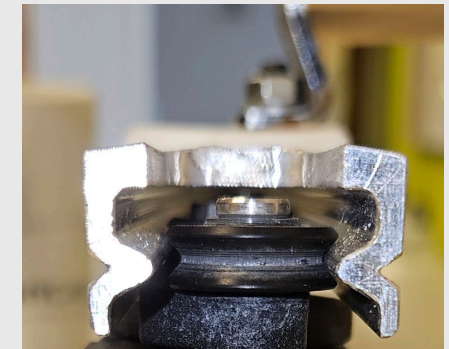
Corrosion on charging electrode



DC-motor with gearbox



Weakness in casing



Wheel of robot on rail







Pilot v2 ready for testing!

# 5 Nextstep and opportunities

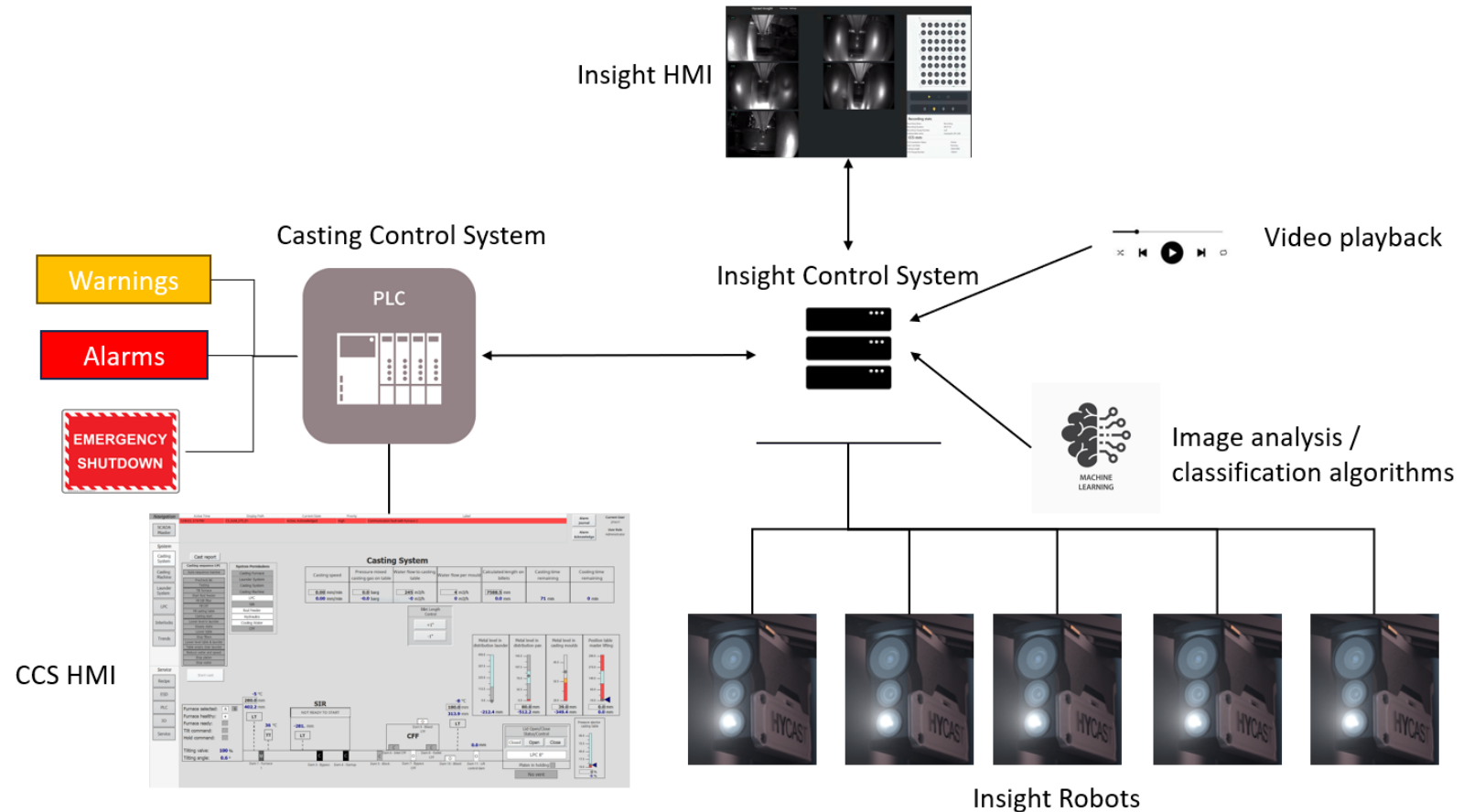
# Next step and opportunities

## Current development

- Robustness
- Industrialization

## Future development

- Automatic detection of abnormalities in the cast
- Playback editor for post cast analysis
- Alarms and decision making in the casting control system based on information from Insight



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Norway's Smartest Industrial Company

# Proud winners 2024



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