



FALCONS
supported by **ASML**

MSL 2014 Workshop – Falcons Introduction

ASML Falcons Team

2014/11/10



Subject

Introduction

Our organization

Our status

Software Architecture

Mechanical overview

Introduction: Who are we?



Falcons Robocup Team

- Started Nov '13

± 20 ASML'ers with:

- different background,
- different skills,
- different hobbies,
- **one goal**

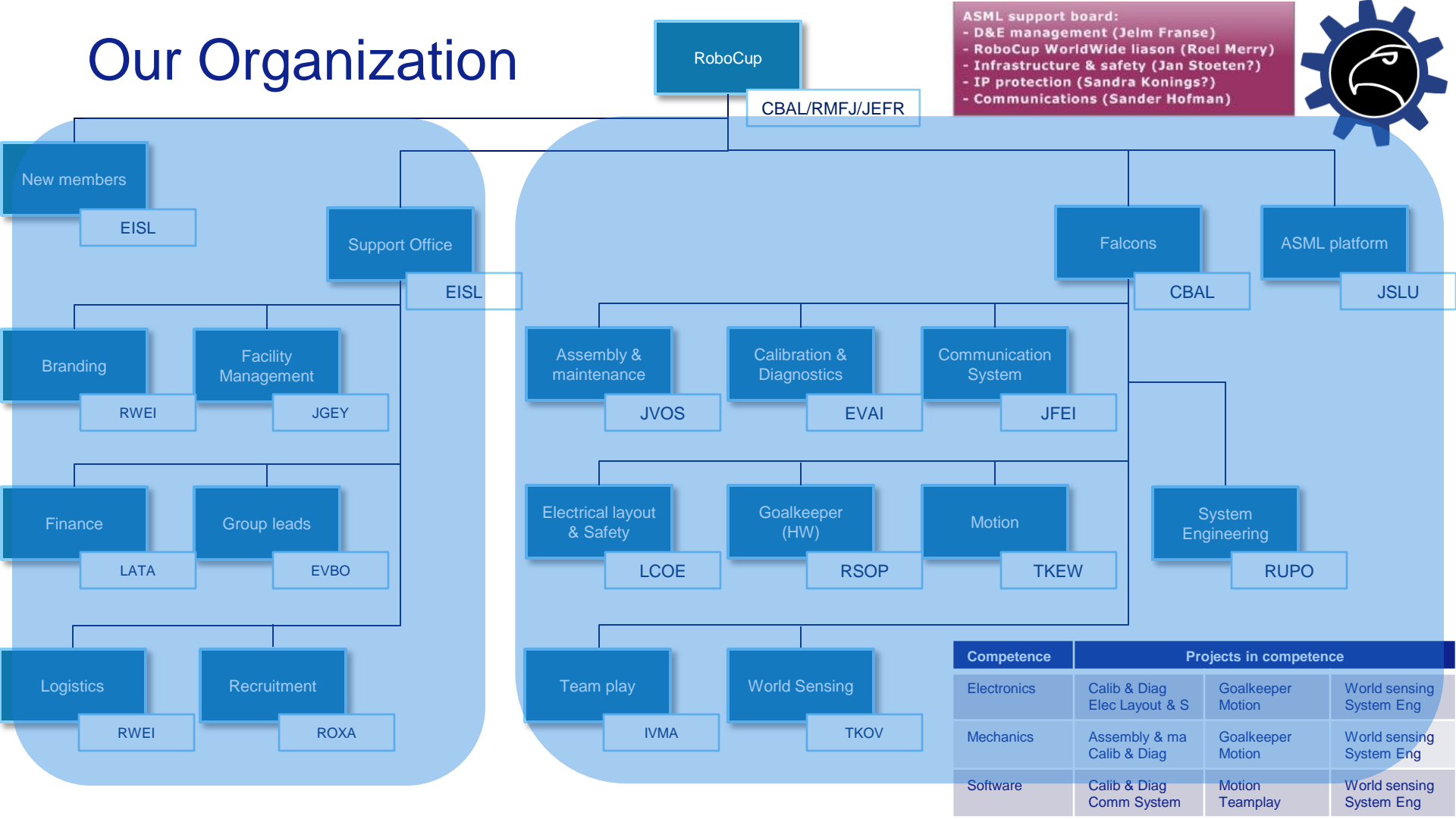


Introduction: Why does ASML participate?

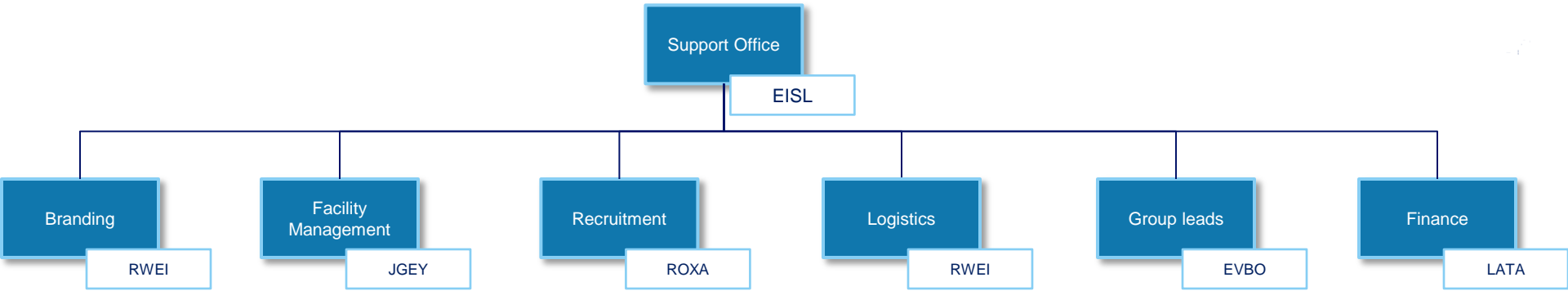


- Promote multi-disciplinary teambuilding and co-operation
 - Expand network and get in touch with colleagues other fields of expertise
- Personal development for its employees
 - Experiment in other fields of expertise
 - Experiment in other roles
 - Technical and non-technical
- Promotion
 - Demo's on fairs, schools, for suppliers, for customers, ...
 - Contact with potential new employees
- Generate enthusiasm and have lots of fun

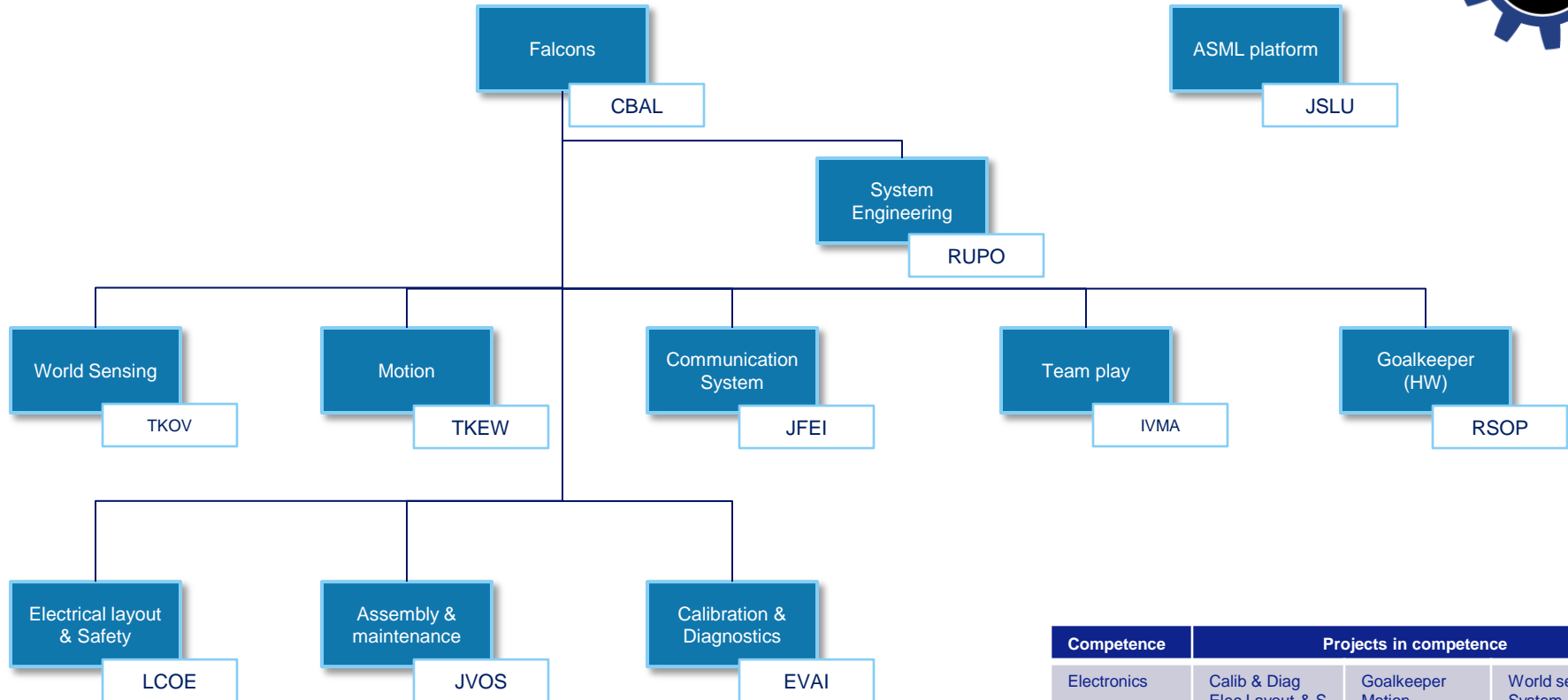
Our Organization



Our Organization: Non Technical



Our Organization: Technical



Competence	Projects in competence		
Electronics	Calib & Diag Elec Layout & S	Goalkeeper Motion	World sensing System Eng
Mechanics	Assembly & ma Calib & Diag	Goalkeeper Motion	World sensing System Eng
Software	Calib & Diag Comm System	Motion Teamplay	World sensing System Eng

Our Status

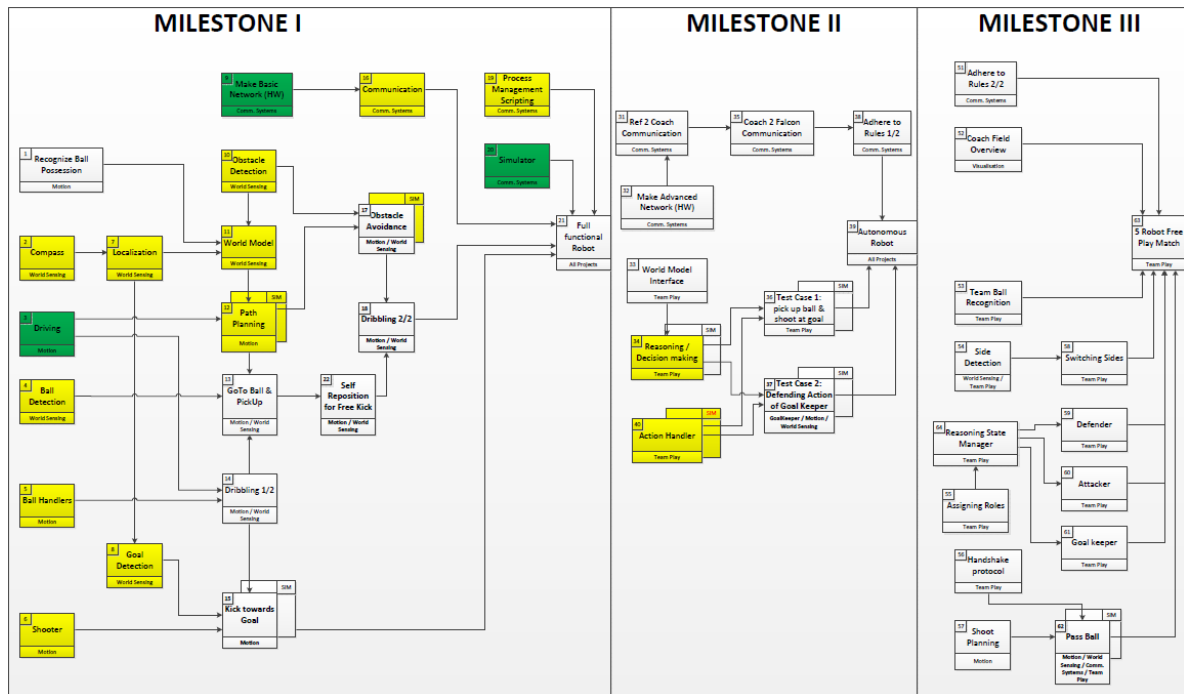


- Start plan (2013): Buy Turtle 5K robot and go to Brazil to learn
 - Hardware delivery promised end 2013
 - SW effort on higher level only and strategy required
- Reality:
 - Late delivery of the HW + various modifications required
 - Quite some issues with basic SW
- Actual status:
 - HW OK – based on Turtle 5K
 - SW: integration ongoing – Based on Turtle 5K + modifications
- Target:
 - We will be present in 2015 World Cup.

Our Status: Integration

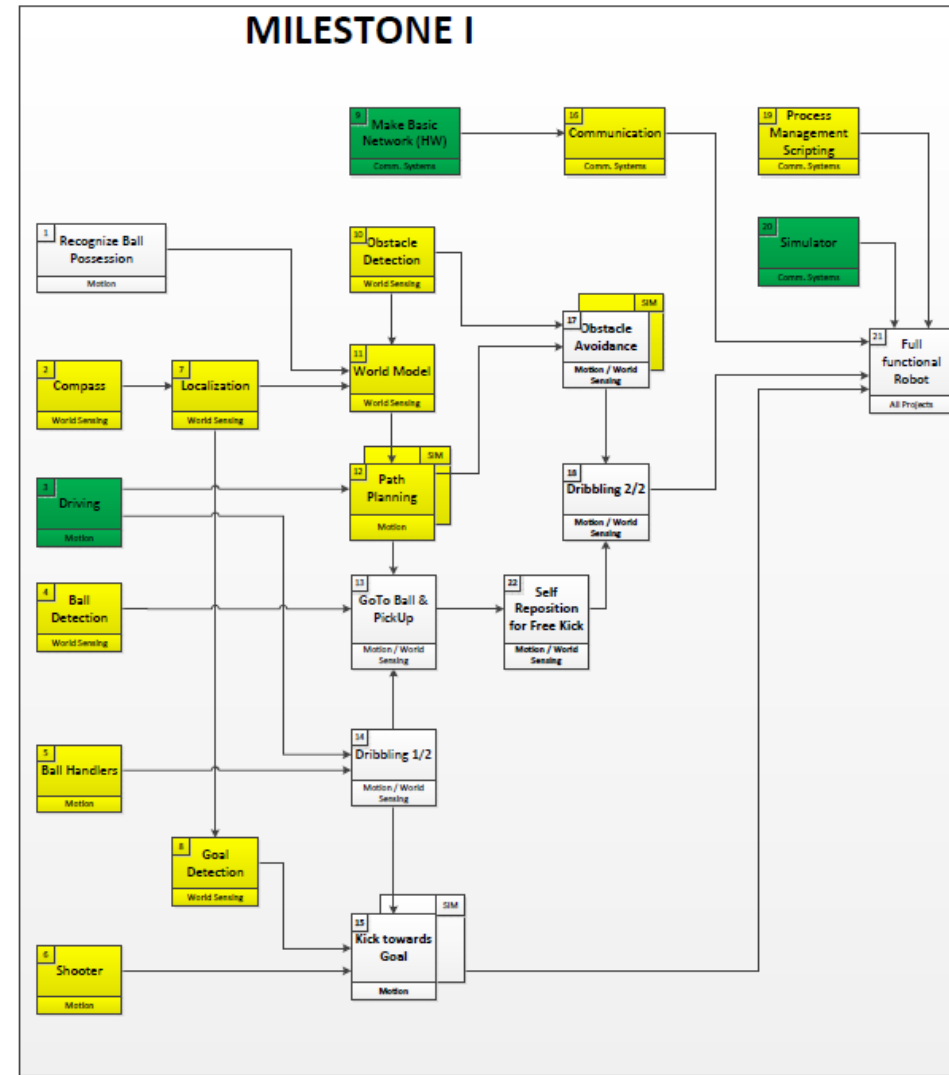


- Milestone 1: Full Functional Robot
- Milestone 2: Autonomous Robot
- Milestone 3: Team to play a match



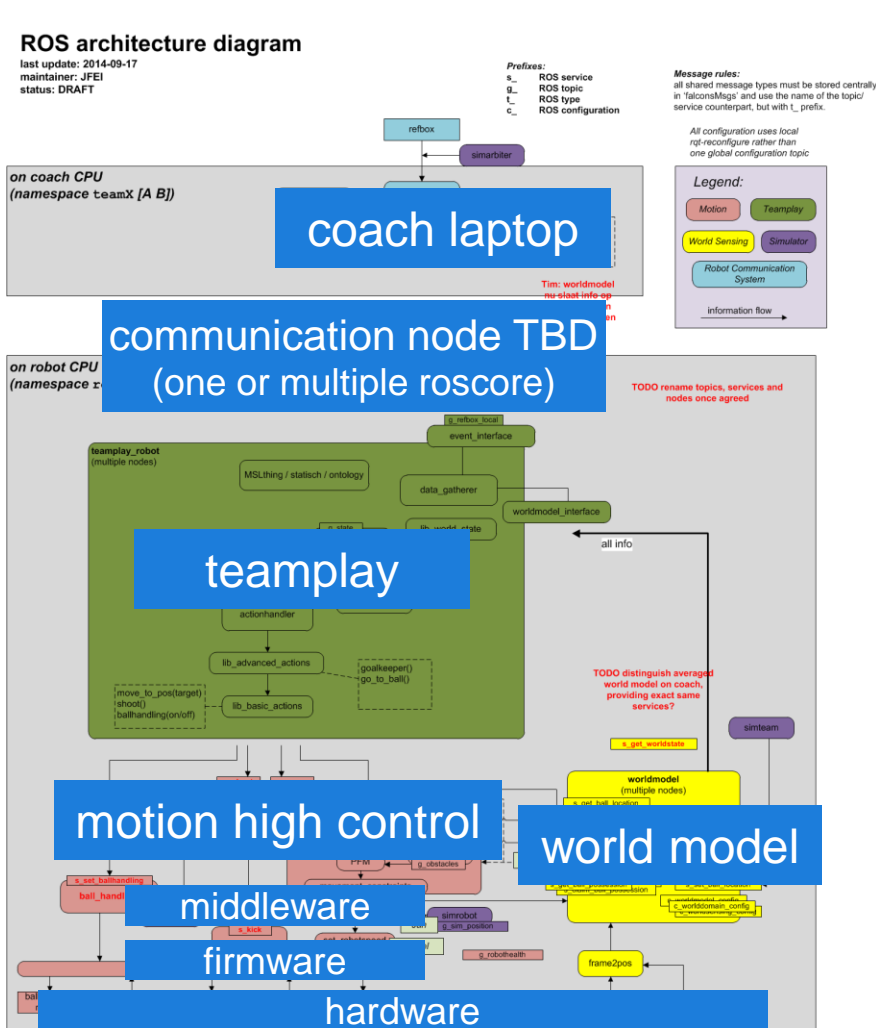
Our Status: Integration

- First main function integrated: Driving
- Localization / world model / Path planning ... are work in progress.
- Next integration target:
 - Obstacle Avoidance
 - Dribbling



Software Architecture

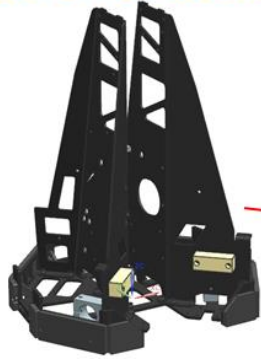
- motion low control moved from OROCOS to firmware+middleware
- custom made basic simulator
- robot intelligence at teamplay
 - teamplay at coach only performs role assignments and refbox relay
- unclear if one roscore can support complete team network





Mechanical overview

Mechanical structure



CPU



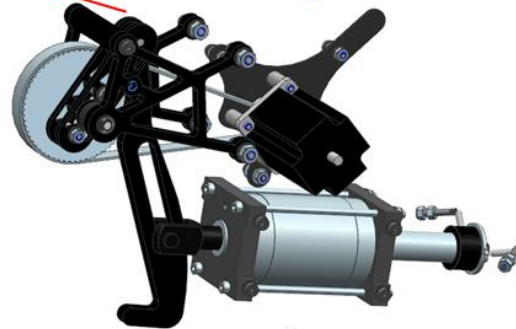
Vision System



WiFi module



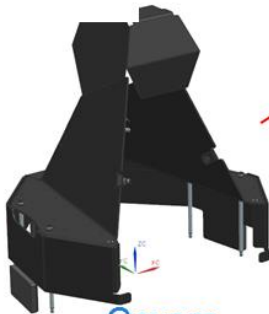
Shooting mechanism



Driving motors



Covers





FALCONS

supported by **ASML**