ROSIN FTP project

WEBOTS + ROS

OPEN-SOURCE ROBOT SIMULATION

APRIL 1ST, 2019 – MARCH 30TH, 2020

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CYBERBOTICS LTD. SWITZERLAND

CYBERBOTICS LTD.

THE DEVELOPERS OF WEBOTS

1996: Webots development started at EPFL, Lausanne, Switzerland.

1998: Founding of Cyberbotics Ltd. First sales of Webots licenses.

2018: Webots becomes free and open source software (Apache 2.0 license).

FUNDED BY:

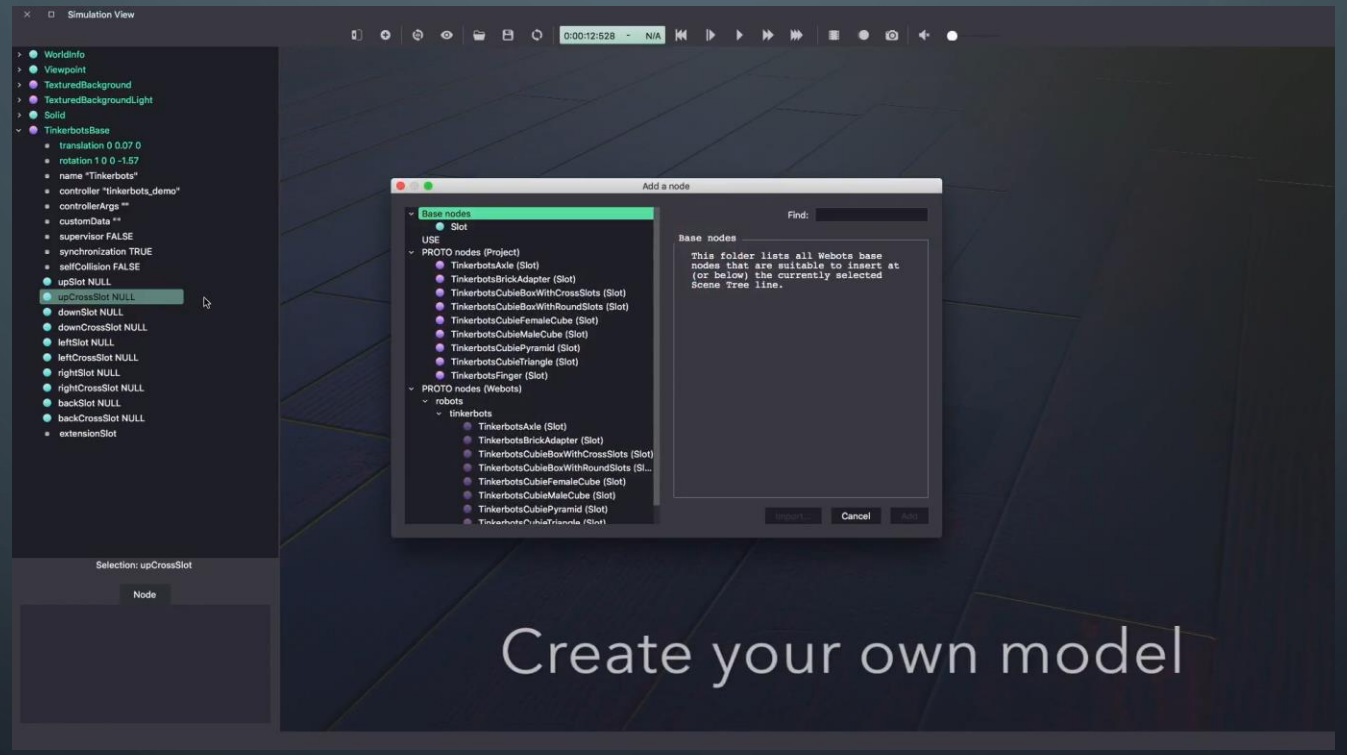
National & European research projects

(CTI, InnoSuisse, SNSF, FP6, FP7, H2020)

Industrial collaborations: automotive, mining, nuclear, space, etc.

WEBOTS: OPEN-SOURCE ROBOT SIMULATOR

MODEL, PROGRAM, SIMULATE, TRANSFER



SENSOR SIMULATION EXAMPLE: CAMERA

HUMANOID ROBOTS

2010-2012: Development of a NAO simulation for Aldebaran Robotics (France)

2011-2013: Development of a DARwIn-OP simulation for Robotis (Korea).

AUTONOMOUS VEHICLES

2014-2015: EPFL (Switzerland) / PSA (France, automotive manufacturer)

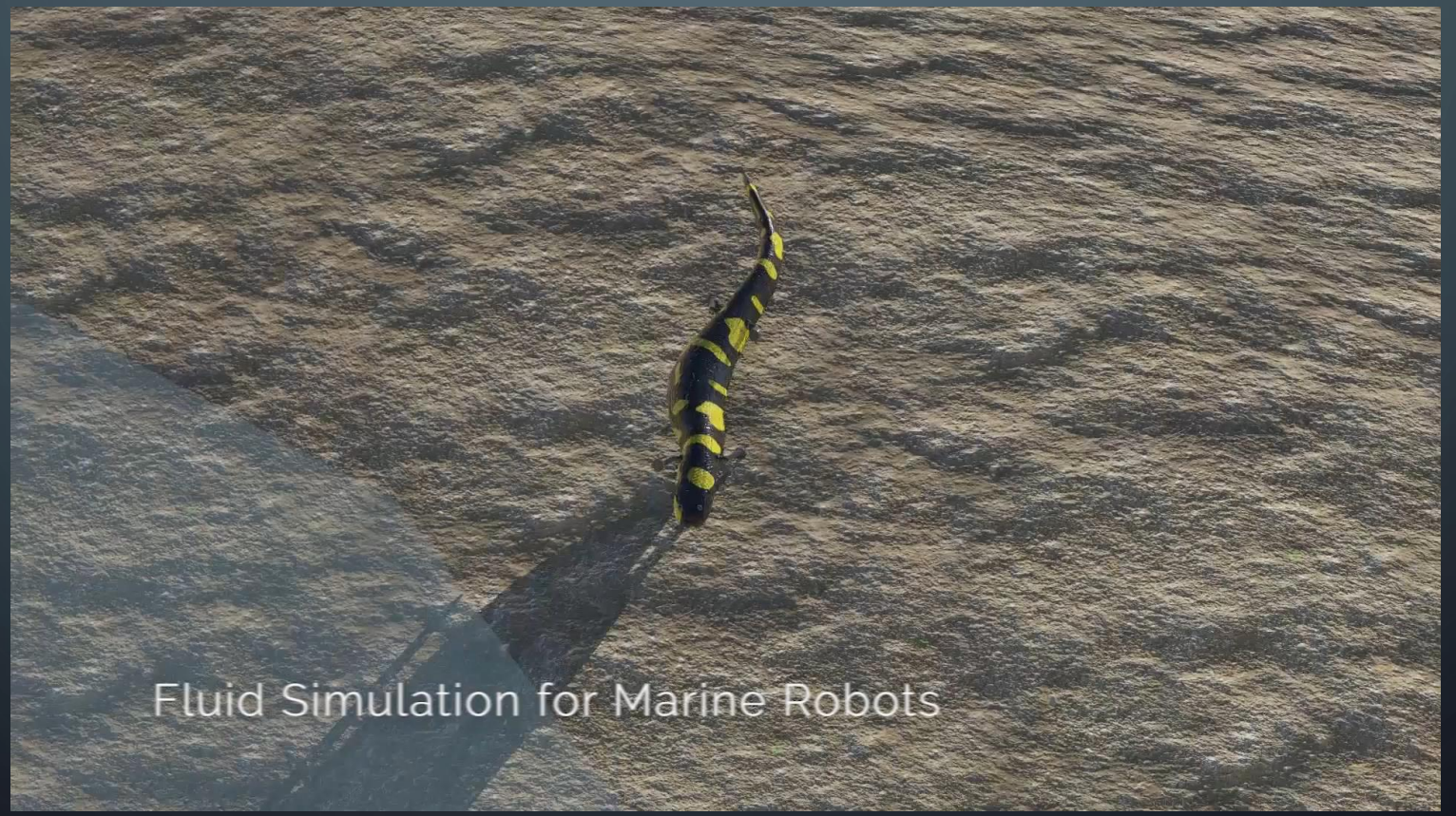
2016-2017: Renault (France, automotive manufacturer)

2016-2019: Perrone Robotics, Wind River, Liebherr (USA, automobile, logistics)

2019: BHP-Billiton (Australia, mining industry)

AUTONOMOUS VEHICLES

WEBOTS: ROBOTICS RESEARCH



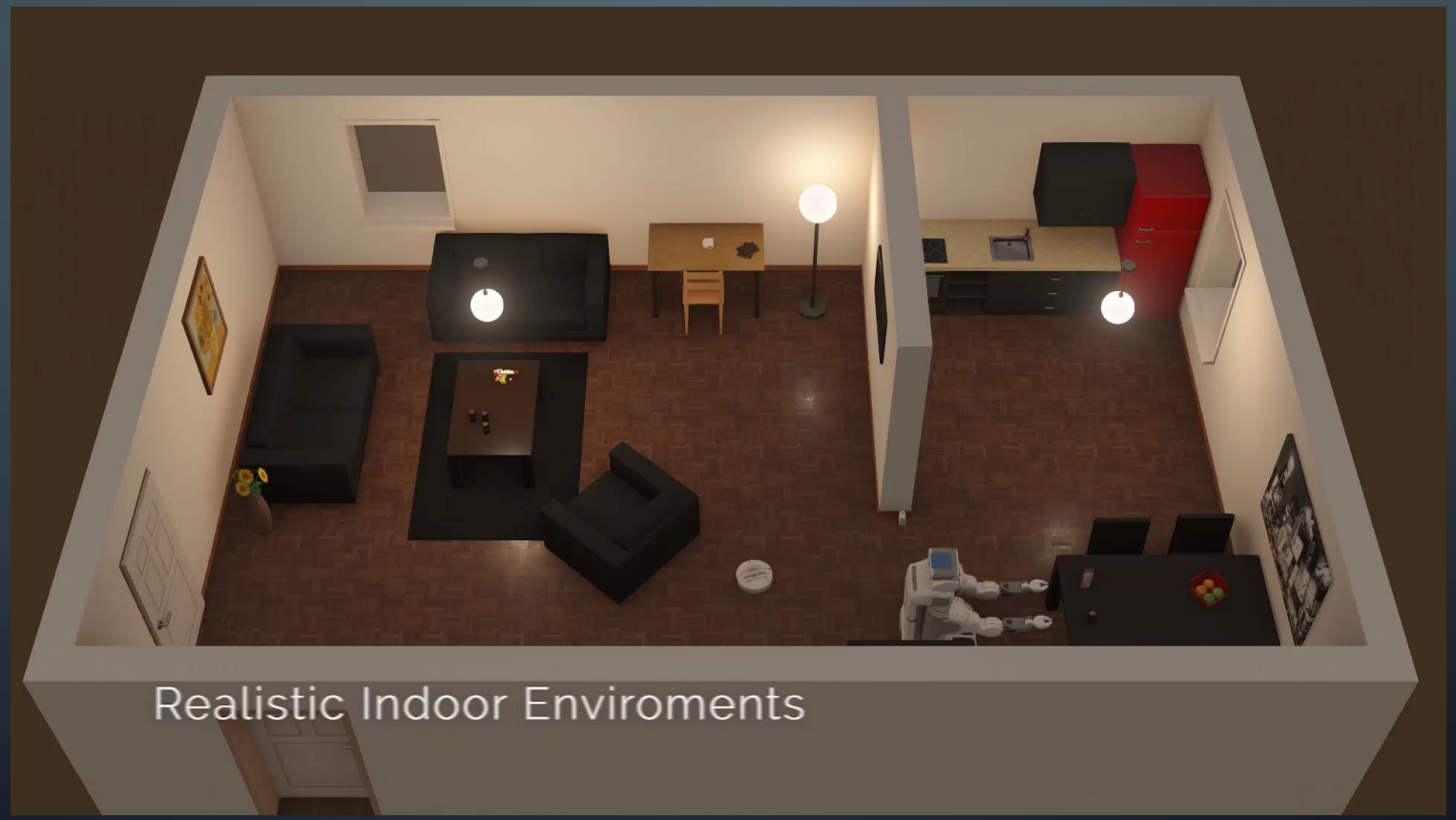
WEBOTS: INDUSTRIAL APPLICATIONS

NUCLEAR POWER PLAN SAFETY ROBOTS

2016: INTRA (France)
EDF/CEA/Areva

2019: KHG (Germany)

INDOORS ROBOTIC APPLIANCES



ROBOT COMPETITIONS

1999-2016: Several robot competitions: wheeled and humanoid robots

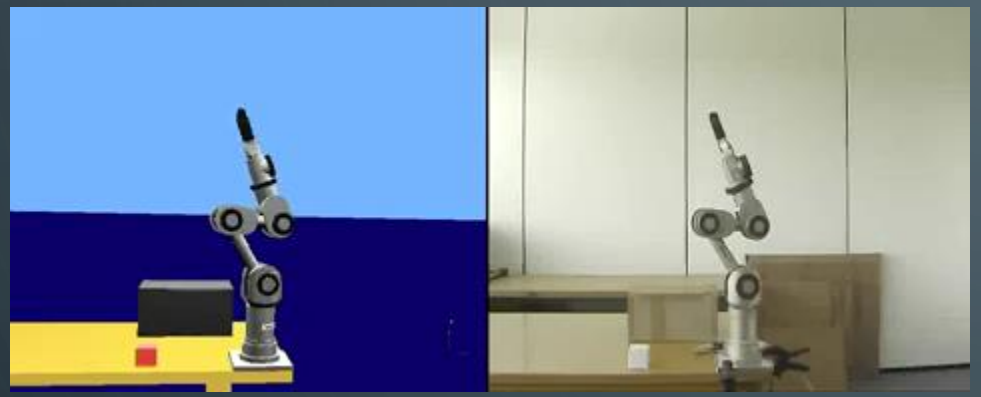
2017: Webots benchmarks running in the cloud at https://robotbenchmark.net

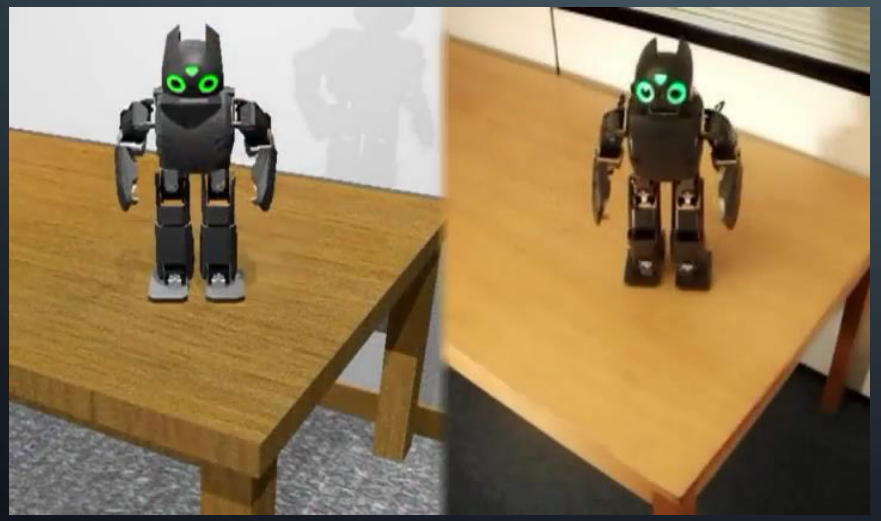
2018: AI World Cup organized by KAIST, (Korea)

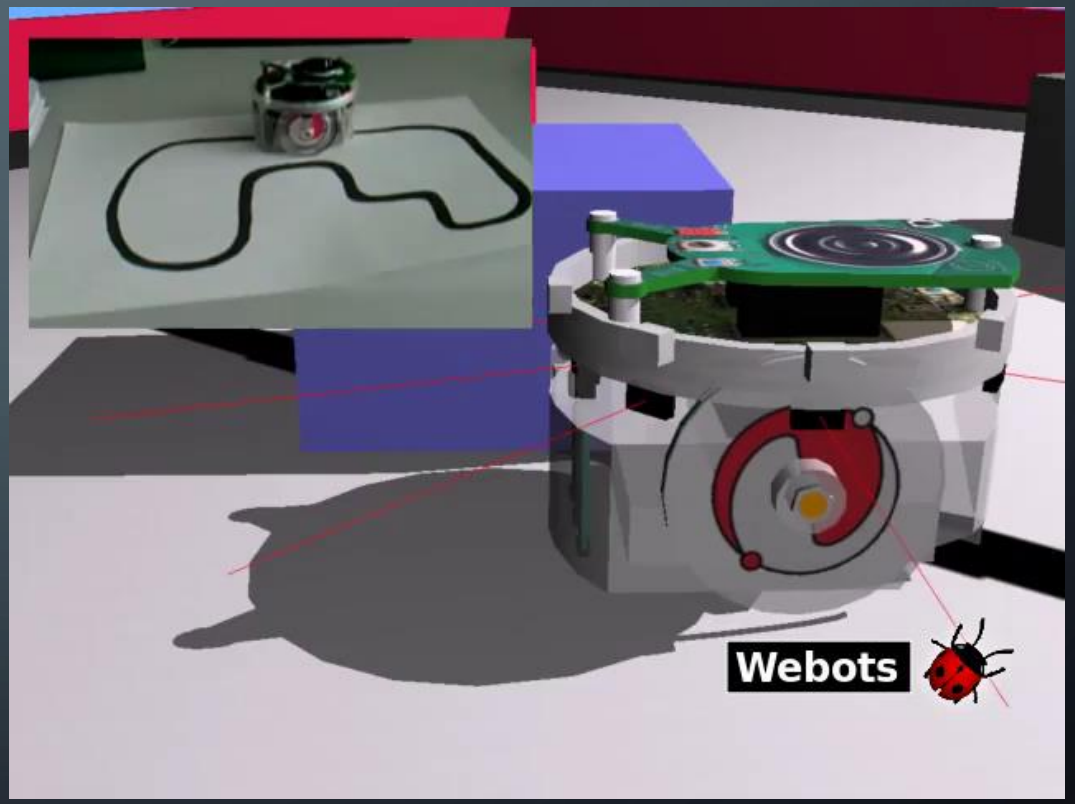
2019: More competitions to be announced!

HUMANOID ROBOT SOCCER COMPETITION

TRANSFER FROM SIMULATION TO REAL WORLD



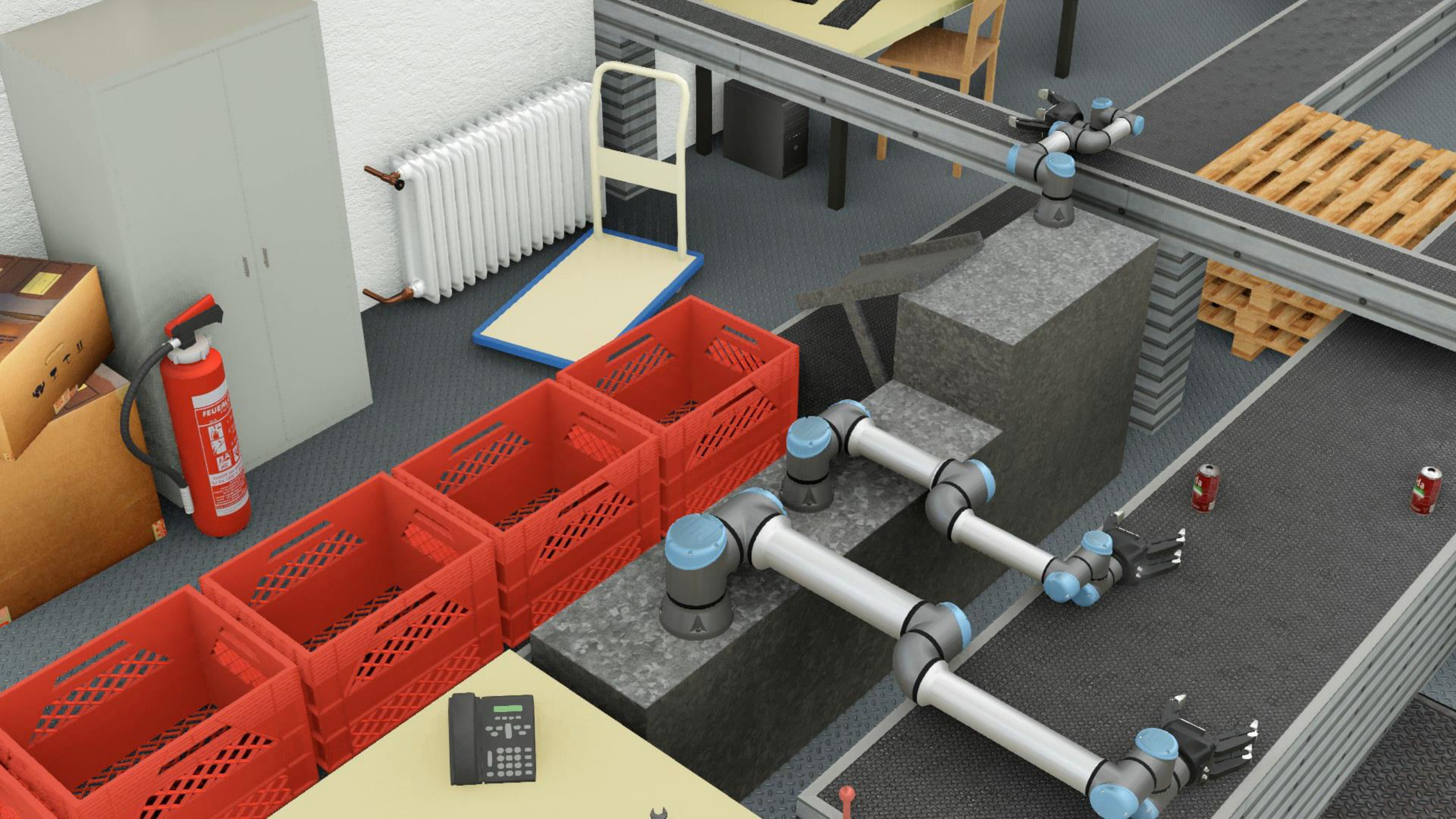


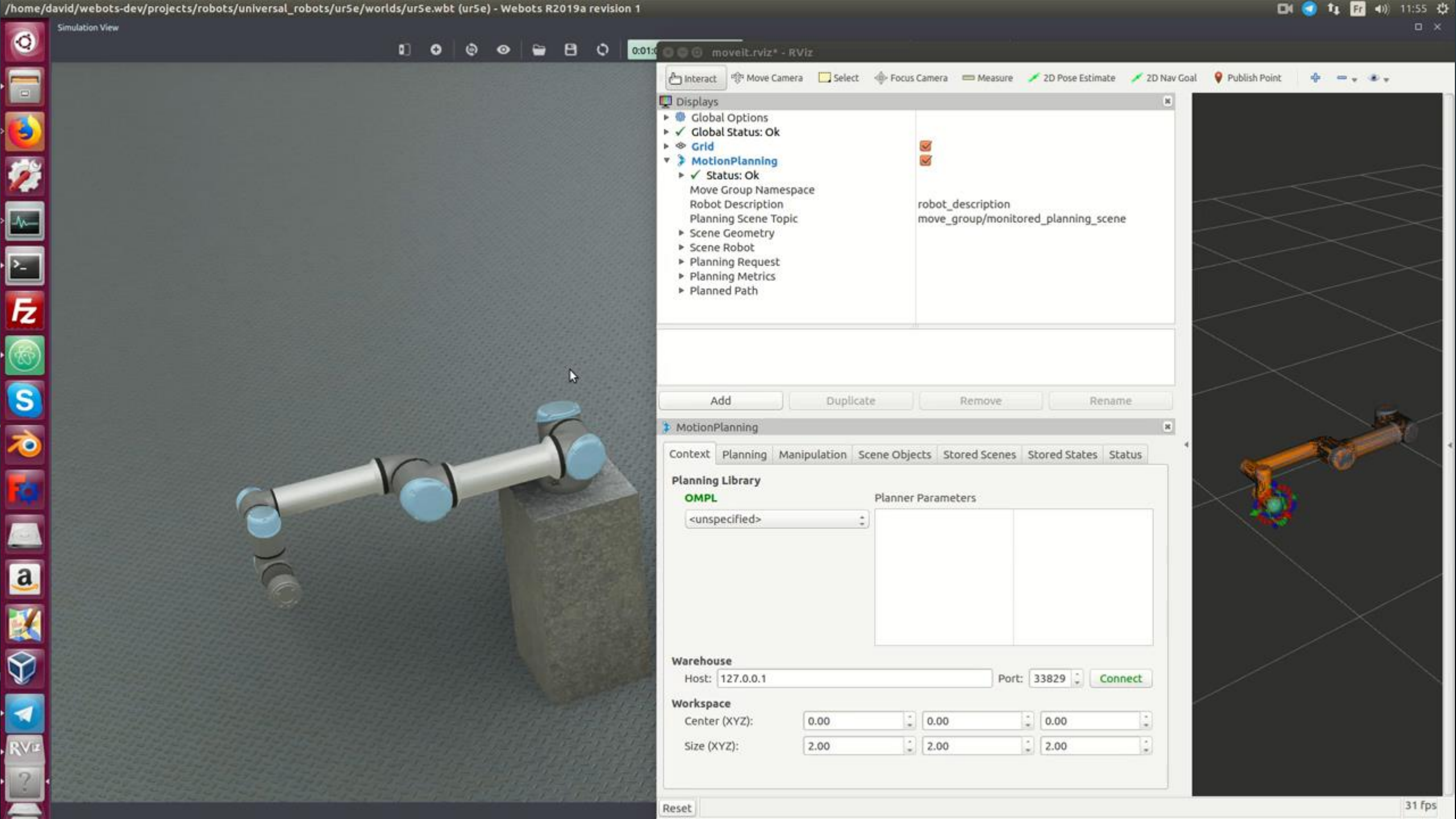


ROSIN FTP PROJECT

ADDING NATIVE ROS SUPPORT IN WEBOTS

- URDF/XACRO converters to Webots PROTO
- UR3e, UR5e, UR10e simulation models & ROS interface (Webots/ROS + UR5e + MoveIt! + RViz)
- TurtleBot 3 Burger simulation model & ROS interface (differential wheels)
- ROS packages for Webots for Kinetic, Lunar & Melodic
- Passed ROS-Industrial test suite
- AWS RoboMaker integration




/home/david/webots-dev/projects/robots/universal_robots/ur5e/worlds/ur5e.wbt (ur5e) - Webots R2019a revision 1
Simulation View
moveit.rviz* - RViz
Interact
Move Camera
Select
Focus Camera
Measure
2D Pose Estimate
2D Nav Goal
Publish Point
Displays
Global Options
Global Status: Ok
Grid
MotionPlanning
Status: Ok
Move Group Namespace
Robot Description
robot_description
Planning Scene Topic
move_group/monitored_planning_scene
Scene Geometry
Scene Robot
Planning Request
Planning Metrics
Planned Path
Add
Duplicate
Remove
Rename
MotionPlanning
Context
Planning
Manipulation
Scene Objects
Stored Scenes
Stored States
Status
Planning Library
OMPL
<unspecified>
Planner Parameters
Warehouse
Host: 127.0.0.1
Port: 33829
Connect
Workspace
Center (XYZ): 0.00 0.00 0.00
Size (XYZ): 2.00 2.00 2.00
Reset
31 fps

INTERESTED IN HIGH FIDELITY ROS SIMULATIONS?

GET IN TOUCH!

HTTPS://CYBERBOTICS.COM