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JdeRobot-URJC GSoC 2019

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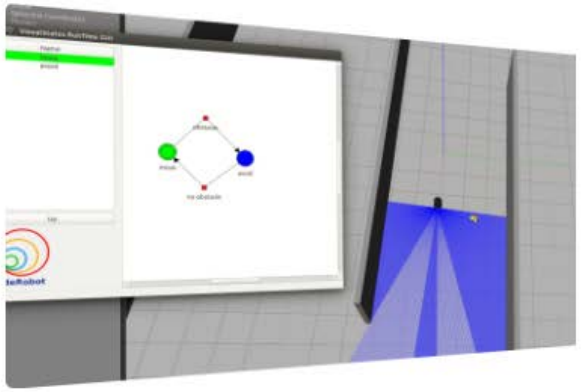
About JdeRobot. Projects

JdeRobot
Programming Robot Intelligence

- Non-profit organization for Robotics and Artificial Intelligence
- Based in Madrid, Spain. URJC (public university) as main sponsor



Robot Programming Tools

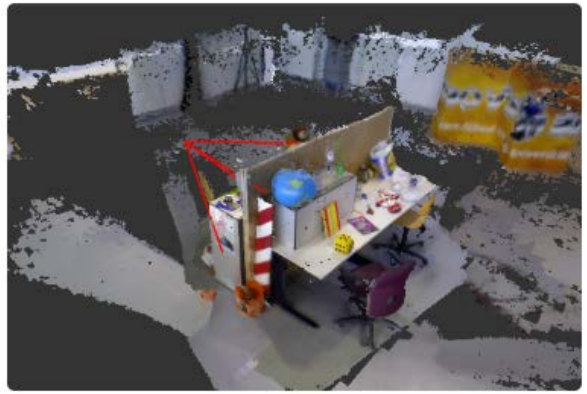
Several development areas: robot programming tools, learning robotics, drones, SLAM algorithms, DeepLearning. All of them are open for collaboration.

Robotics Education & Games

RoboticsAcademy is an open source collection of exercises to learn robotics in a practical way. Programmed in Python, the Gazebo simulator and the ROS framework are used.

Deep Learning

Development areas: evaluation of deep learning detection and segmentation models, dataset creation, object detection and hardware customization with neural FPGAs.



Visual Slam

VisualSLAM uses computer vision to locate a 3D camera with 6 degrees of freedom inside a unknown environment and, at the same time, create a map of this environment.

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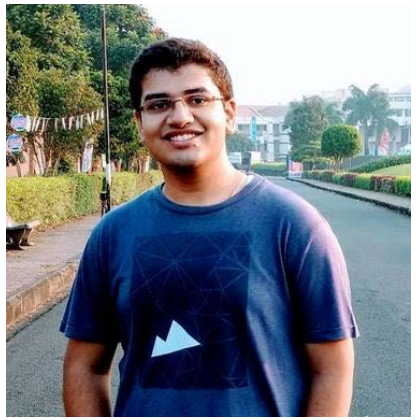
https://jderobot.github.io

JdeRobot and GSoC

JdeRobot
Programming Robot Intelligence

- Participating in GSoC since 2015 (https://jderobot.github.io/activities/gsoc/)

GSoC-2019
2 admins
10 mentors
6 students


Nikhil Khedekar


Jeevan Kumar


Srinivasan Vijayraghavan


Pankhuri Vanjani


Baidyanath Kundu


Shyngyskhan Abilkassov

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JdeRobot Robotics Academy

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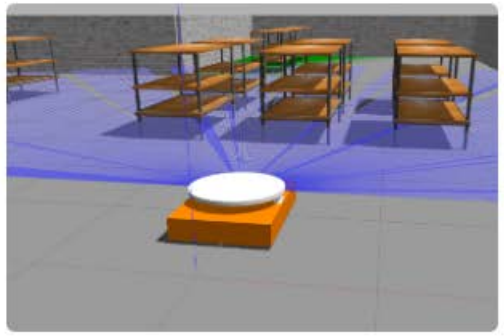
2 GSoC-2019 projects focused on expanding Robotics Academy

- **Robotics Academy** is an open source proposal to learn robotics and computer vision
- Based on JdeRobot software toolkit + ROS/Gazebo + OpenCV.
- 24 Python-based exercises on mobile robots, autonomous cars, drones and vision:

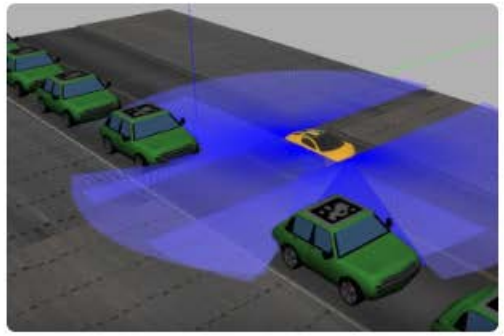


Amazon Warehouse

Autonomous navigation and pick-and-place logic.

Autoloc Laser

Robot self-localization using particle filter and laser sensor



Autoparking

Logic of a navigation algorithm for an automated vehicle.

Car Junction

Automated vehicle must stop and pass once the road is clear.

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https://jderobot.github.io/RoboticsAcademy/

#1: Migration of drone exercises to ROS

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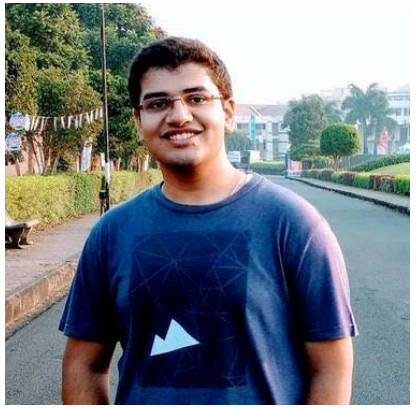
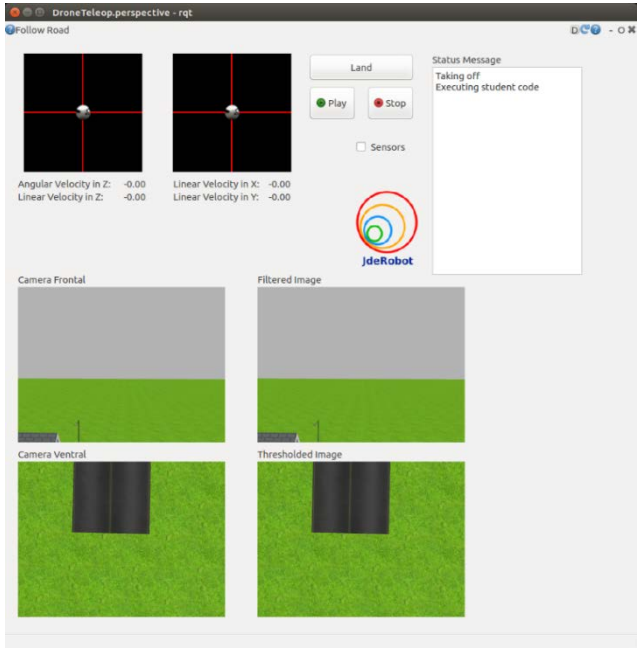
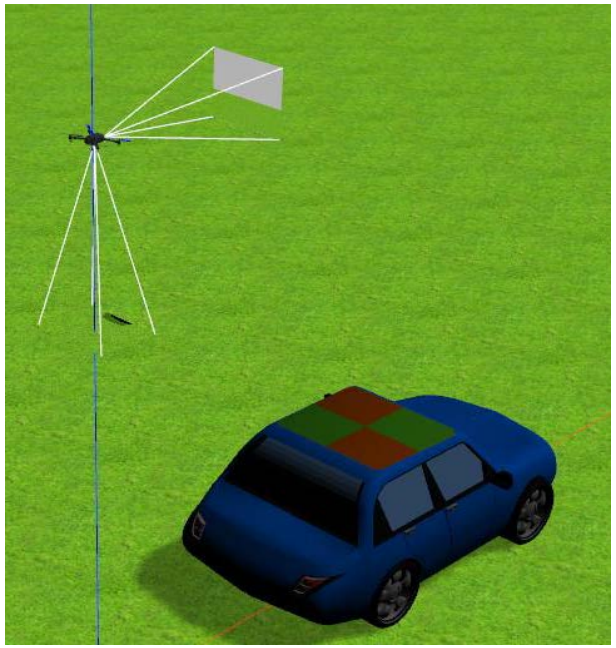
Nikhil Khedekar

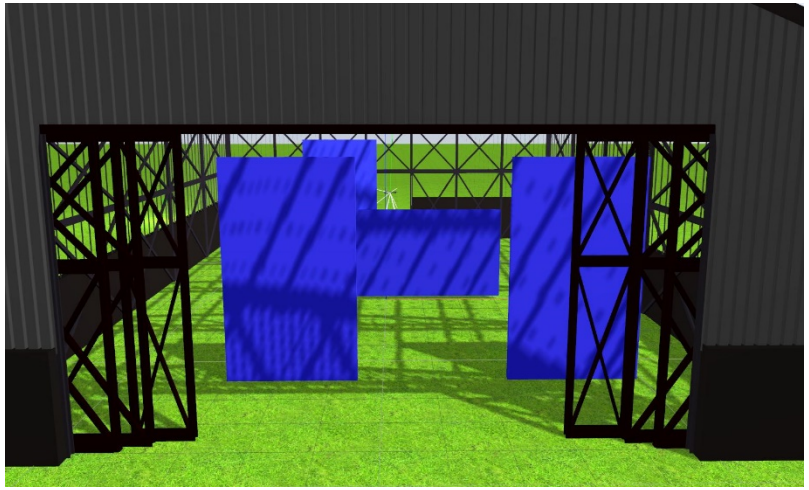


- Migrated old (ICE-based) infrastructure of **7 available exercises on drone programming** to ROS through MavROS and PX4 in Gazebo
- Allows students to directly porting their code onto PX4-based real drones
- Provides new tools for drone programming in ROS using MavROS





https://www.youtube.com/watch?v=KLDX4OPTL_c



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https://theroboticsclub.github.io/colab-gsoc2019-Nikhil_Khedekar/