INTRODUCING PICK&ROLL

Powered by Arduino

Simulated with Solidworks

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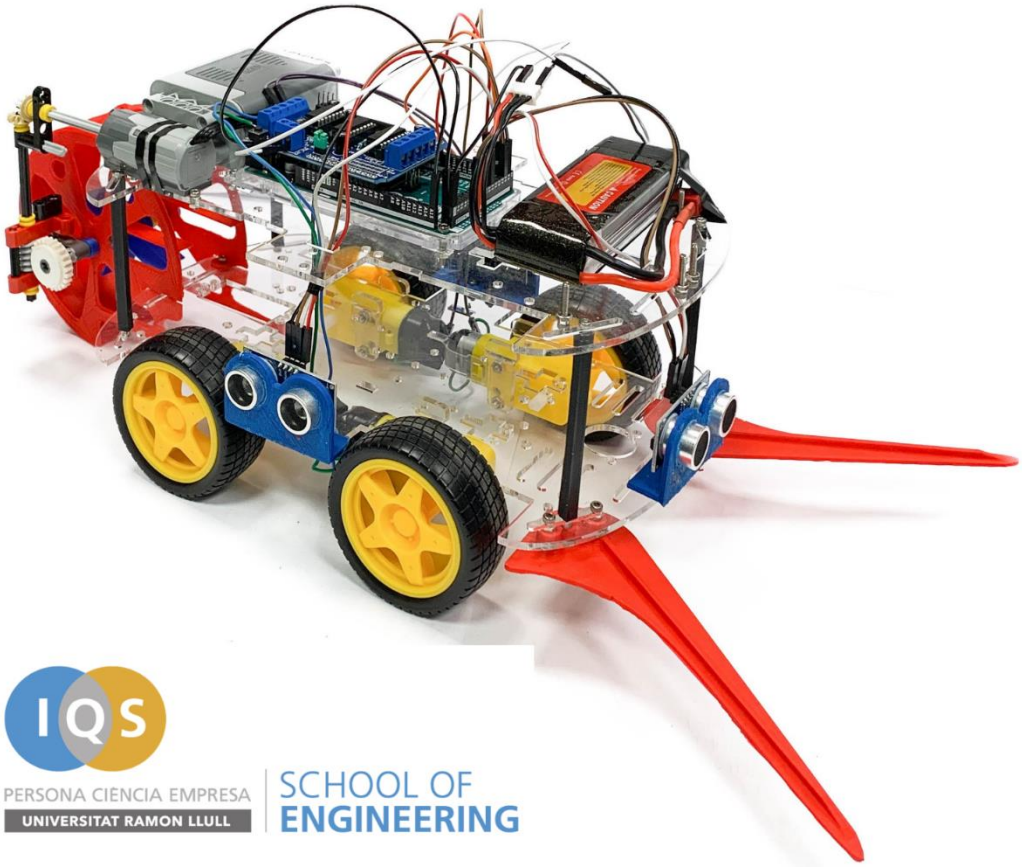
INTRODUCTION

This robot was conceived as a novel solution to retrieve balls in different sports, such as tennis or golf. The use of a mechanical retrieving system allows the robot to catch the balls as it moves, and it is also capable of detecting people and nearby objects. The robot was programmed to avoid collisions and alert users with a sound alarm of its presence.



IQS
PERSONA CIENCIA EMPRESA
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The robot is programmed to avoid players and nearby objects

Coding a robot that catches balls

ARDUINO

LEGO mindstorms EV3

The robot was designed to operate safely and don't harm any person nearby. The ultrasonic sensors allow the robot to measure its distance to other objects and avoid them.
Main components:

1. Arduino Mega
2. Electric motors
3. Ultrasonic sensors

Multidisciplinary project

- MAIN FEATURES
- 3D printed parts
- Simulation with Solidworks
- Coded using Arduino
- Allowing detection of nearby objects
- Lego Mindstorm
- Scalable robot
- Retrieving ball system

ADDITIVE MANUFACTURING

The use of this technology allowed a quick transition from the CAD model to the final part and also increased the number of iterations and improvements done. Further customizations could be done with our printers.

Manufacturing process

BRAINSTORM
Different ideas and concepts were discused

DESIGN
Define the objectives and steps of the project

BUILDING
Merging of different technologies and softwares

TESTING
Test the subsystems of the robot (motor, ultrasonic sensors,..)

PRODUCTION
The prototype can be implemented into a manufacturing line

SOLIDWORKS