

ENPH 253: *El Buscador Del Oro*

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Introduction

- ▶ Challenge Objective
- ▶ Challenge Surface
- ▶ Overview of Robot
 - ▶ Chassis and Drive System
 - ▶ Idol Retrieval System (I.R.S.)
 - ▶ Telescoping Return Mechanism (T.R.M.)
 - ▶ Electrical Components
 - ▶ Software Design



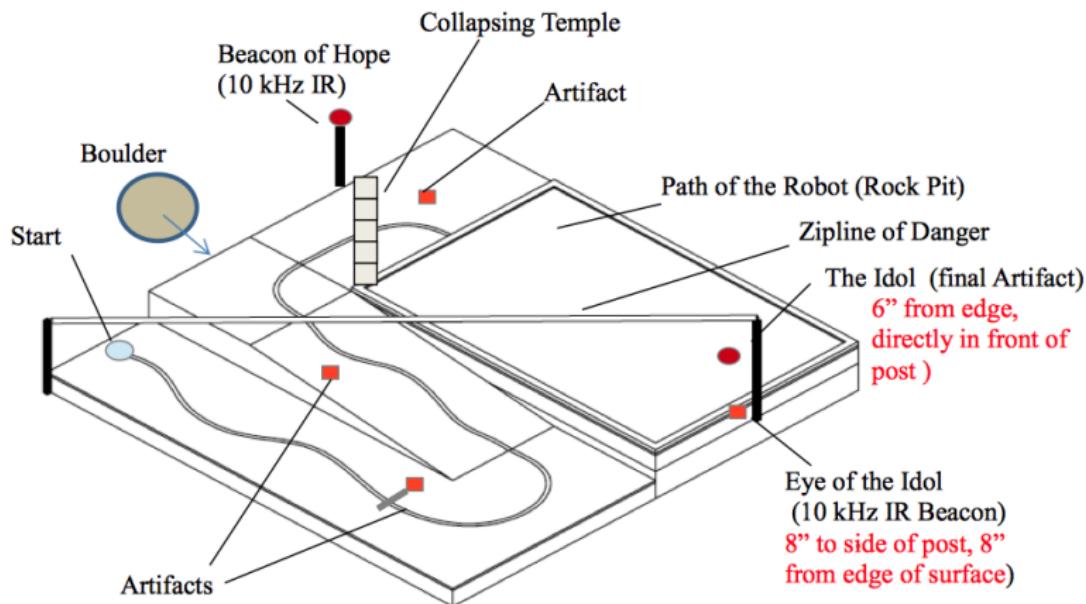
Challenge Objective

- ▶ Tape Follow
- ▶ Collect Artifacts
- ▶ Detect and Follow IR Beacon
- ▶ Return to Start with Artifacts and Golden Idol

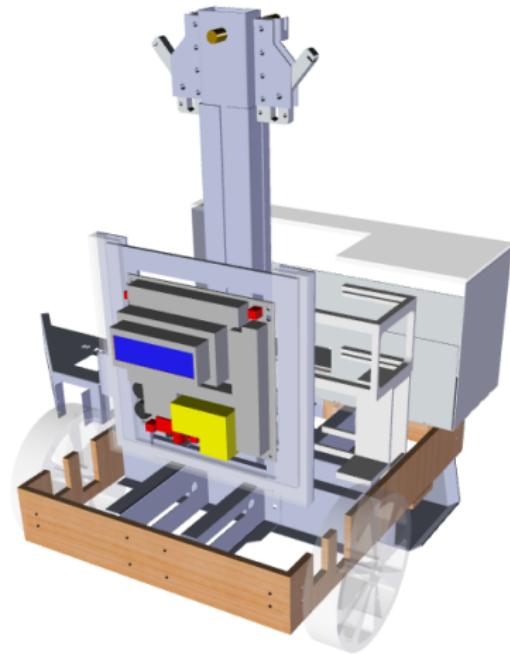


Golden Idol

Challenge Surface

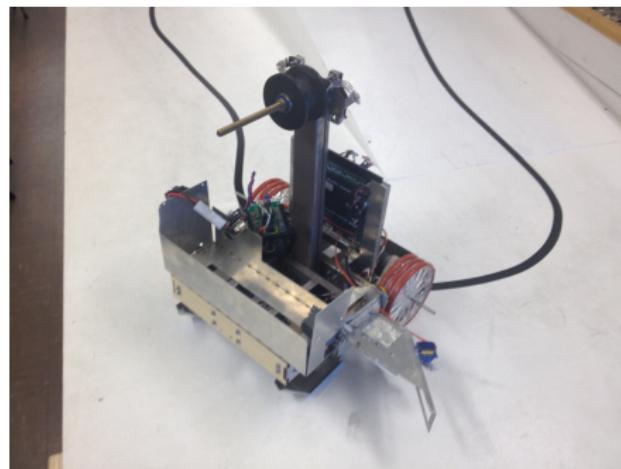


El Buscador del Oro



Chassis and Drive System

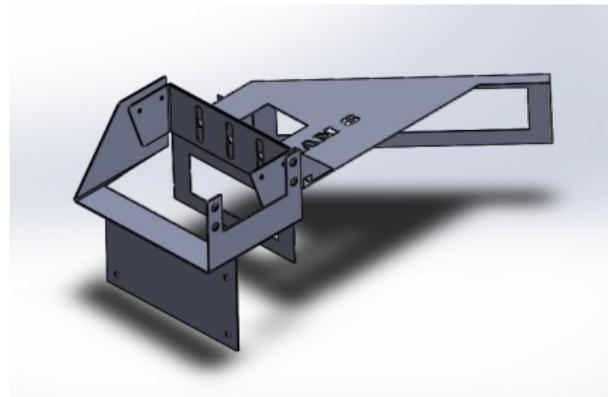
- ▶ Gearbox and Motors
- ▶ Wheels and Sleds
- ▶ Suspension



Chassis

Idol Retrieval System (I.R.S.)

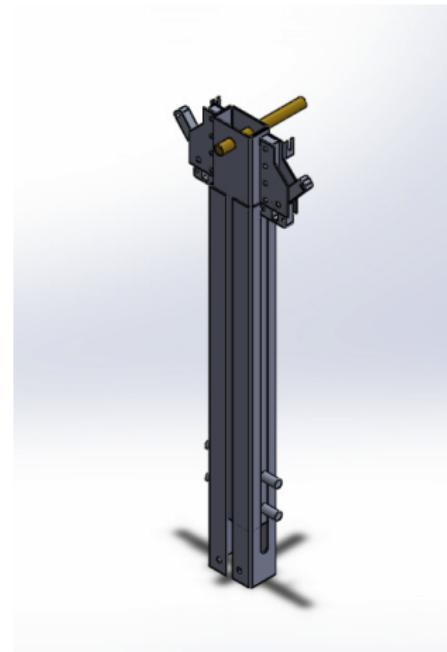
- ▶ Collector Arm
- ▶ Sweeper Arm
- ▶ Basket and Conveyor Belt



IRS

Telescoping Return Mechanism (T.R.M.)

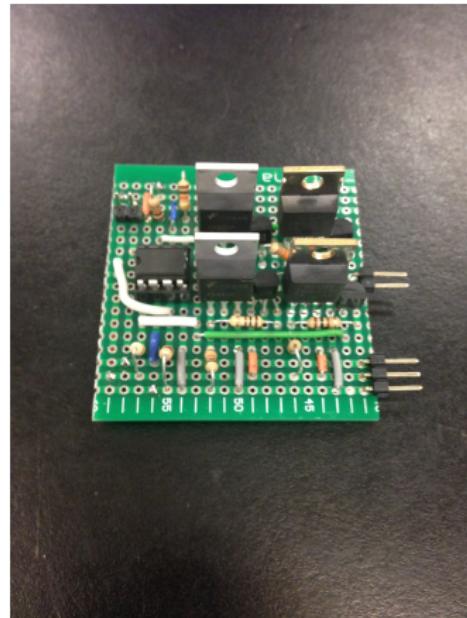
- ▶ Telescoping Arms
- ▶ Winch
- ▶ Rubber Bands
- ▶ Release System
- ▶ Zipline Wheel



TRM

Electrical Components

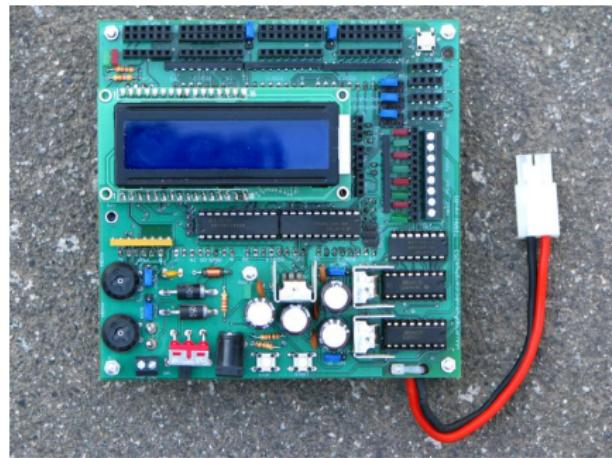
- ▶ H-Bridge Circuit
- ▶ Infrared Detection Circuit
- ▶ Reflective Object Sensors (QRDs)



H-Bridge

Software Design

- ▶ Test Based Programming
- ▶ Saving Data
- ▶ TINAH Menu System



TINAH

What We Learned

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- ▶ Checklists >Time Dependent Goals
- ▶ Organization

References

- ▶ **ENPH Logo:**

<http://ubc-rapid.com/blog/wp-content/uploads/2014/04/ENPHlogo.png>

- ▶ **Challenge Surface:**

<http://projectlab.engphys.ubc.ca/wp-content/uploads/enph253-2014-CompetitionRules-v4.pdf>

- ▶ **TINAH Picture:**

<http://projectlab.engphys.ubc.ca/enph253/tinah/>