



SMALL-SIZE SOCCER ROBOTS

Major Qualifying Project (MQP)

We are a team of ten Major Qualifying Project (MQP) students at the Worcester Polytechnic Institute (WPI), working to enter the RoboCup Small Soccer League.

Project Description

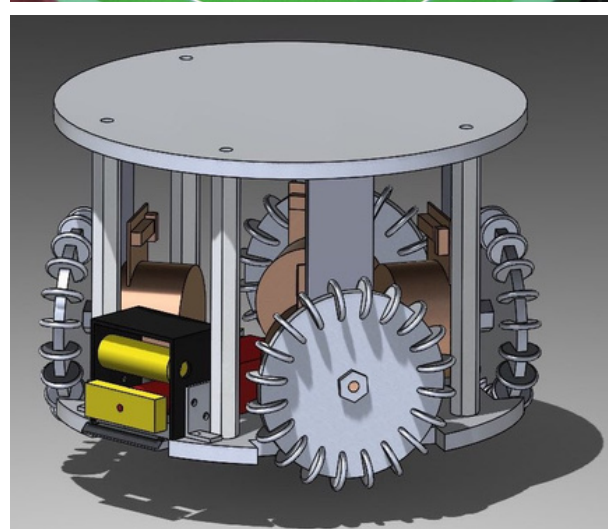
We are developing a team of 6 robots capable of competing in a soccer match autonomously. To do so, we have three sub-teams. The computer science group is creating and testing code in simulation to control the robots and implement an effective and successful strategy. The mechanical and electrical groups are working to design, build, and test six physical robots that will make up our RoboCup Team.

What is an MQP?

An MQP is a team-based project encouraging professional-level design and acts as a culminating project for WPI students. Learn more [here](#).

What is RoboCup?

RoboCup is an international robotics competition created with the goal of advancing robotics and artificial intelligence. Learn more [here](#).



Project Timeline



Propose initial design in October

Begin rapid development in November

Integrate subsystems in January and begin full-scale testing

Project Presentation Day in April 2023



Robot Requirements



Reach a velocity of 5 m/s



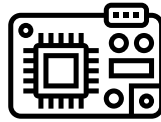
Decrease from any velocity to zero within 2 seconds



Accelerate ball to a velocity of 6.5 m/s in 3D space



Six Agents communicating bidirectionally with master



32-bit microcontroller operating at 300 MHz



Batteries that offer at least 2800 mAh

Preliminary Budget

CATEGORY	COST
Drive Motors	\$782.61
Hardware	\$169.08
Actuators	\$116.00
Sensing and Vision	\$22.00
Electrical, Power Distribution, and Computing	\$185.00
Raw Materials	\$257.19
TOTAL	\$1,531.88

**x 6 ROBOTS
+ 1 SUBSTITUTE**

COST
\$5,478.30
\$1,183.56
\$812.00
\$754.00
\$1,295.00
\$1,800.30
\$11,323.16

Sponsorship

We're seeking sponsorships to help complete this project. Sponsors will be advertised at well-known robotics venues including RoboCup: an international competition with top universities and organizations.



\$1000+ or Material Equivalent

- Sponsor Logo on T-Shirt
- Large Logo on each robot



\$500 - \$999 or Material Equivalent

- Sponsor Logo on T-Shirt
- Small Logo on each robot



< \$500 or Material Equivalent

- Sponsor Logo on T-Shirt

Contact

This project is being developed by ten students and four advisors spanning robotics engineering, electrical engineering, mechanical engineering, and computer science.

Email: ejvadeboncoeur2@wpi.edu