



Design a Bot



You may or may not already know this, but April plays host to National Robotics Week. This year features the fifth annual celebration, which takes place from **April 5-13, 2014**. In honor of this momentous occasion, we thought we'd use our April scavenger hunt to help acquaint you with the wonderful world of robotics. And what better way to get acquainted with robots than to dream up your very own? This **Design a Bot** scavenger hunt will introduce you to the process of building a robot and will highlight why the field of robotics is worth celebrating!

Activity

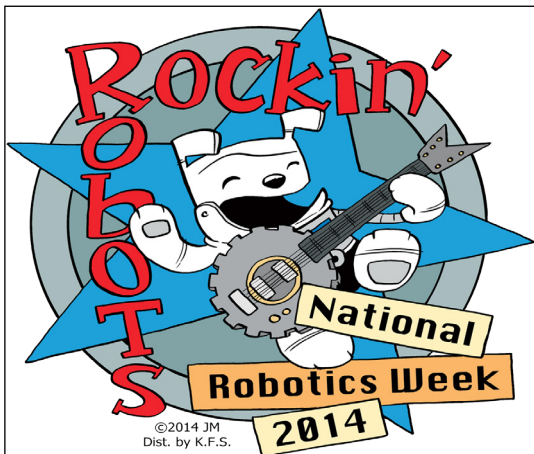


Photo source: nationalroboticsweek.org

The goal of National Robotics Week is to increase public awareness of the important cultural and social impact that robotics has on society. In order to fully understand the weight of this scavenger hunt, your journey will begin at the National Robotics Week website. Once you have visited this site and explored everything this celebration has to offer, our design endeavor shall begin!

Start here: <http://www.nationalroboticsweek.org>



Design a Bot: R & D

Before you can start designing your robot, it is most important to figure out what this activity will entail. To many robotics professionals, this step in the process is called the R & D (or research and development) phase. Two major questions addressed in the R & D phase are: What do I want my robot to do, and what elements will I need to include in order to make the robot?

First, you will need to decide what you want your robot to do. The functions of robots are often only limited by our imaginations. See if any of these robots sparks any inspiration for your robot:

Barista-bots: <http://bit.ly/1jBimS6> **Wildcat-bot:** <http://bit.ly/OdviBe> **Cleaning-bots:** <http://bit.ly/1oqOIJd>

Now that you've seen some ideas, what do you want your robot to do?

Though the definition of the word “robot” can bring about a number of different responses, you can be sure that there are certain things that all roboticists would agree are essential to make the robot function. Just like the human body, robots run due to a series of interactions between different systems.

What are the five major systems your robot will need?

(Hint: <http://bit.ly/QFYe7i>)

1. _____
2. _____
3. _____
4. _____
5. _____



Now that you have a basic idea of what you want your robot to be, there are even more decisions to make. As you discovered earlier in the activity, your robot will be needing a body structure. Us humans rely on our skeletons to maintain our body structure, and robots are no different. Robot structures are often very similar to the human skeleton, containing many moveable parts connected by joints.

Now that you know your robot needs a skeleton, sketch that structure below.

Now that you have an idea of what your robot's skeleton will look like, you need to figure out how that skeleton will move. In humans, our muscles are what enable us to move. For robots, however, movement can be brought about by motors, magnets, or even water. Yet some scientists are trying to bypass both the skeleton and the muscles by utilizing a new type of technology...

How are scientists at iRobot making “soft” robots?

(Hint: <http://bit.ly/1pWxsDG>)





You've heard about the different types of "muscle" systems your robot could use, but now it's time to pick one. How will your robot move?

The next thing your robot will need is a power source for its "muscles," along with something to control that power source. What kind of power source and control will your robot have?

(Hint: <http://bit.ly/1dQnfa1>)

Now that you have designed a spiffy new robot, find out what it would be like to be a real-life robotics professional! Read why these robotics professionals think their jobs are the coolest, then list one of your favorite things about their stories.

Dr. Chris Jones, Director for Research Advancement at iRobot: <http://bit.ly/1i4oEW9>

Jeff Leichter, Industrial Robotics Engineer: <http://bit.ly/1gqL6Yj>

But let's not stop there! Since you've spent all of this time imagining up your very own, super cool robot, don't keep your creation to yourself! Head on over to our blog and share your plans for the world's next super-bot!

<http://stem-worksblog.com/scavenger-hunts/national-robotics-week-design-a-bot/>