

TOWARDS A ROBOT IN EVERY CLASSROOM

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Bioinspired Robotics

Wyss Institute Retreat
November 18, 2013

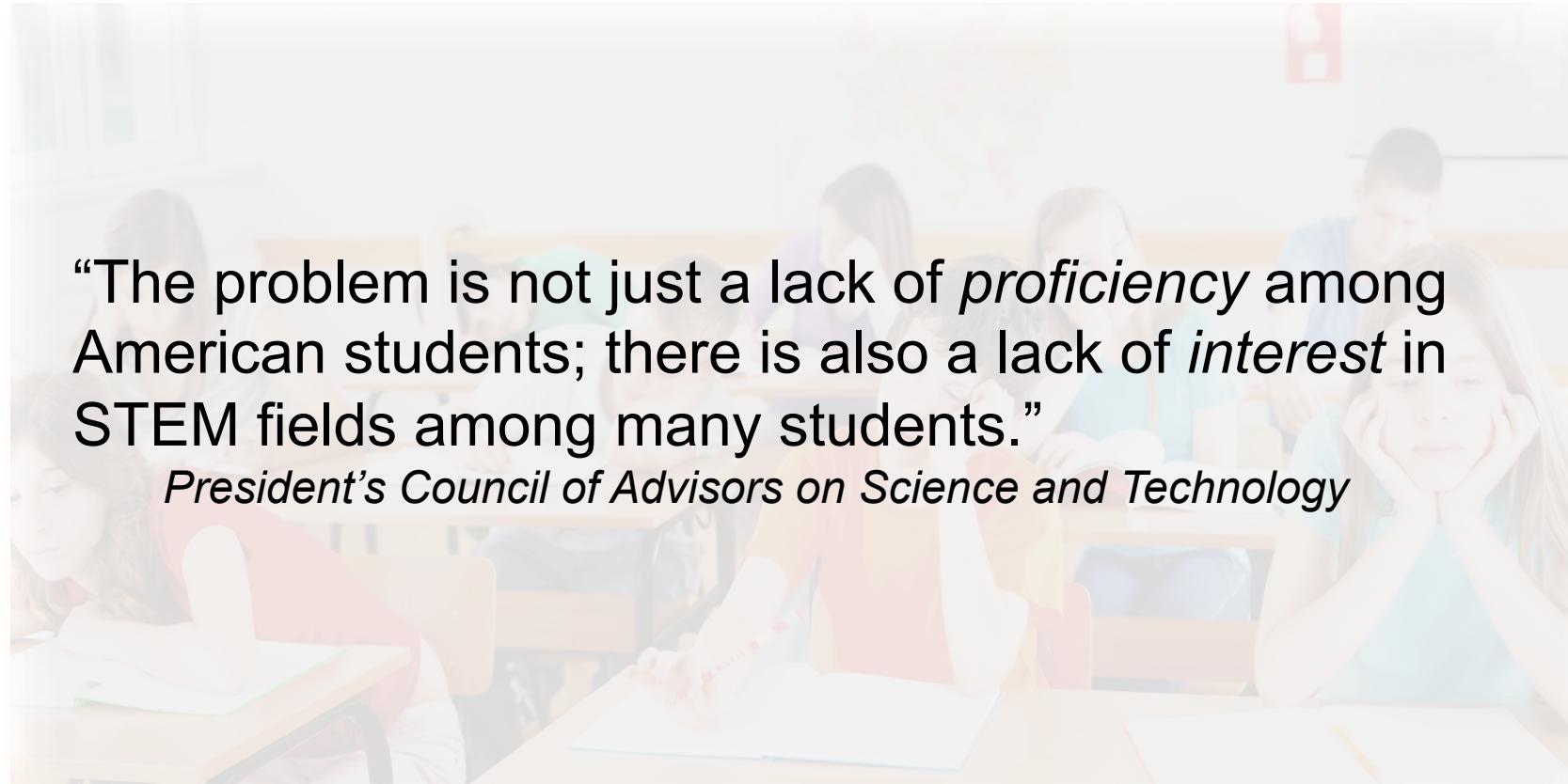


HARVARD UNIVERSITY
Self-Organizing Systems Research Group

We have a problem with education in science, technology, engineering, and mathematics (STEM).

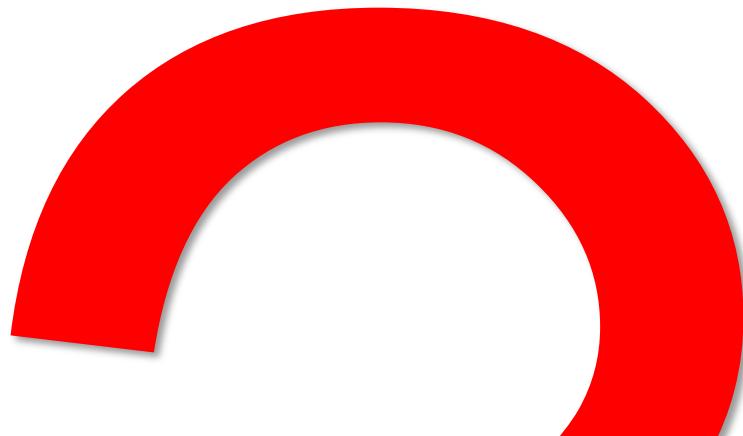


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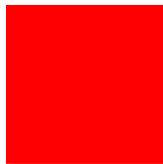


“The problem is not just a lack of *proficiency* among American students; there is also a lack of *interest* in STEM fields among many students.”

President’s Council of Advisors on Science and Technology



**How do we excite and inspire young students
to learn more about science and technology?**



“Where is Sputnik when we need it?”

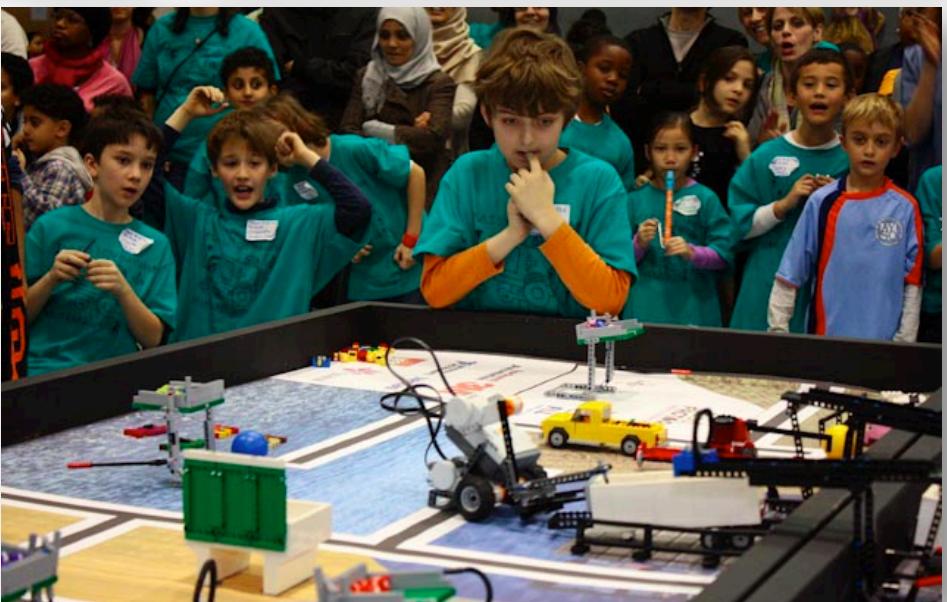
Bill Gates





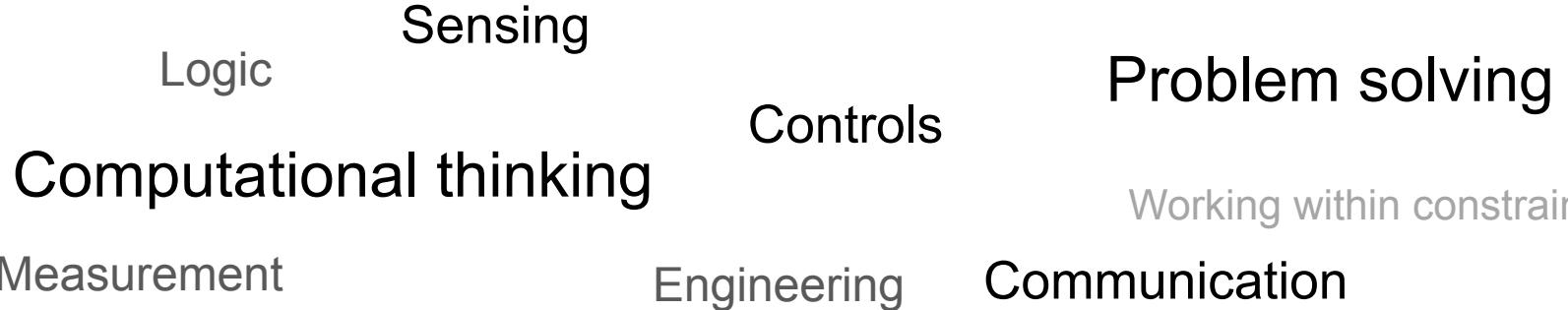


Robots can make science and technology more fun and approachable.



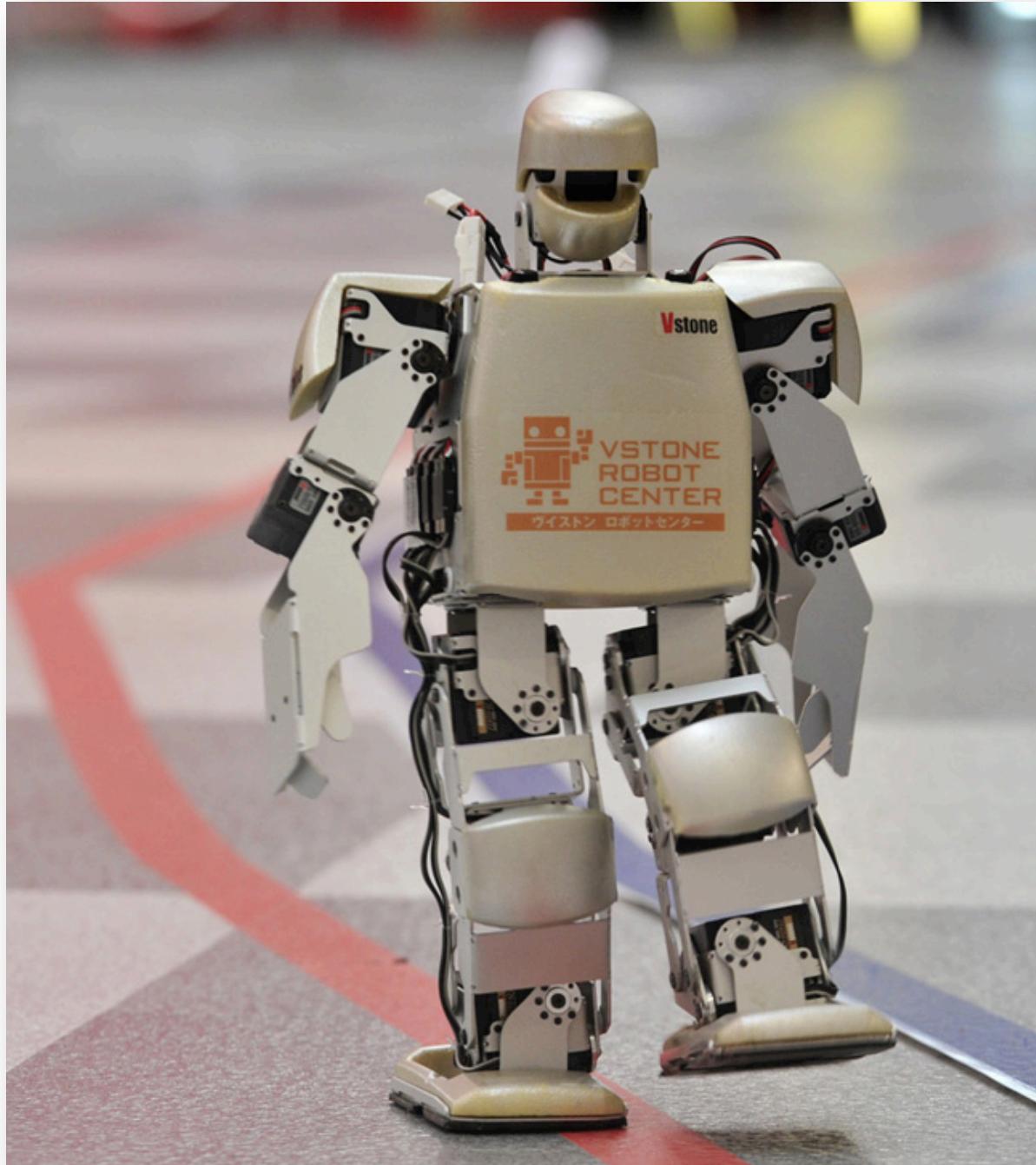
Robots have great potential as learning tools.





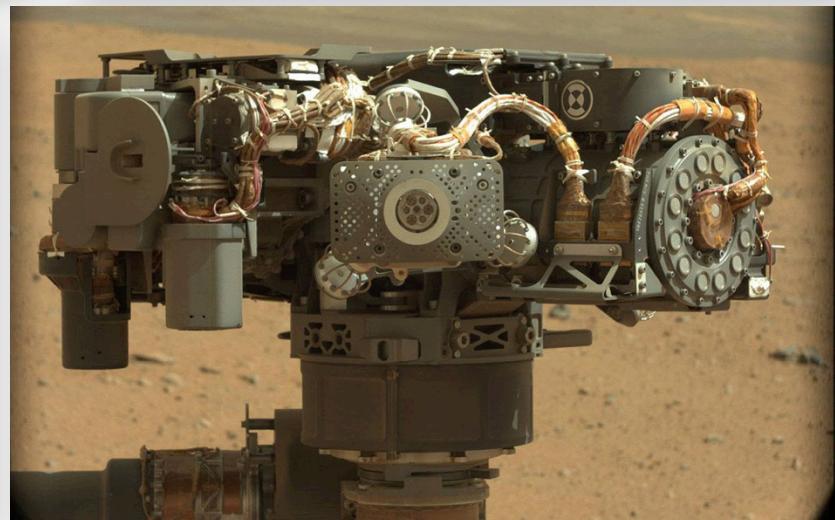
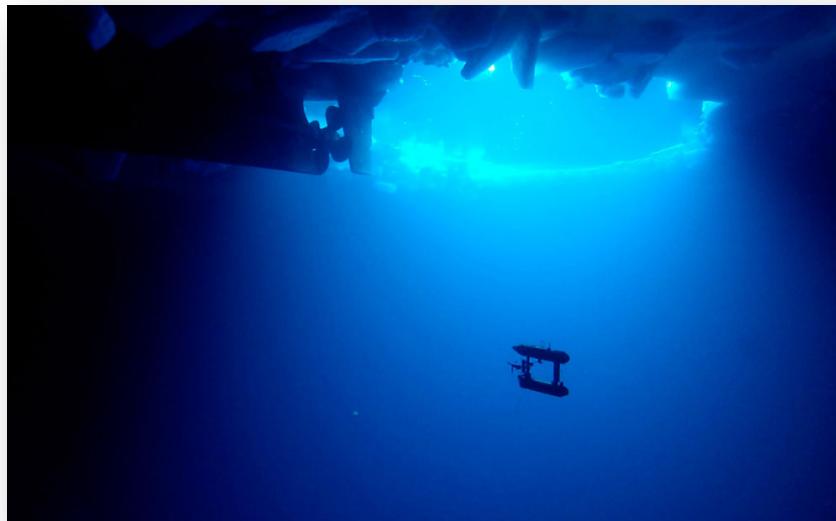
Robots have great potential as learning tools.





But not just
any robot.

Robots are designed for specific uses and environments.



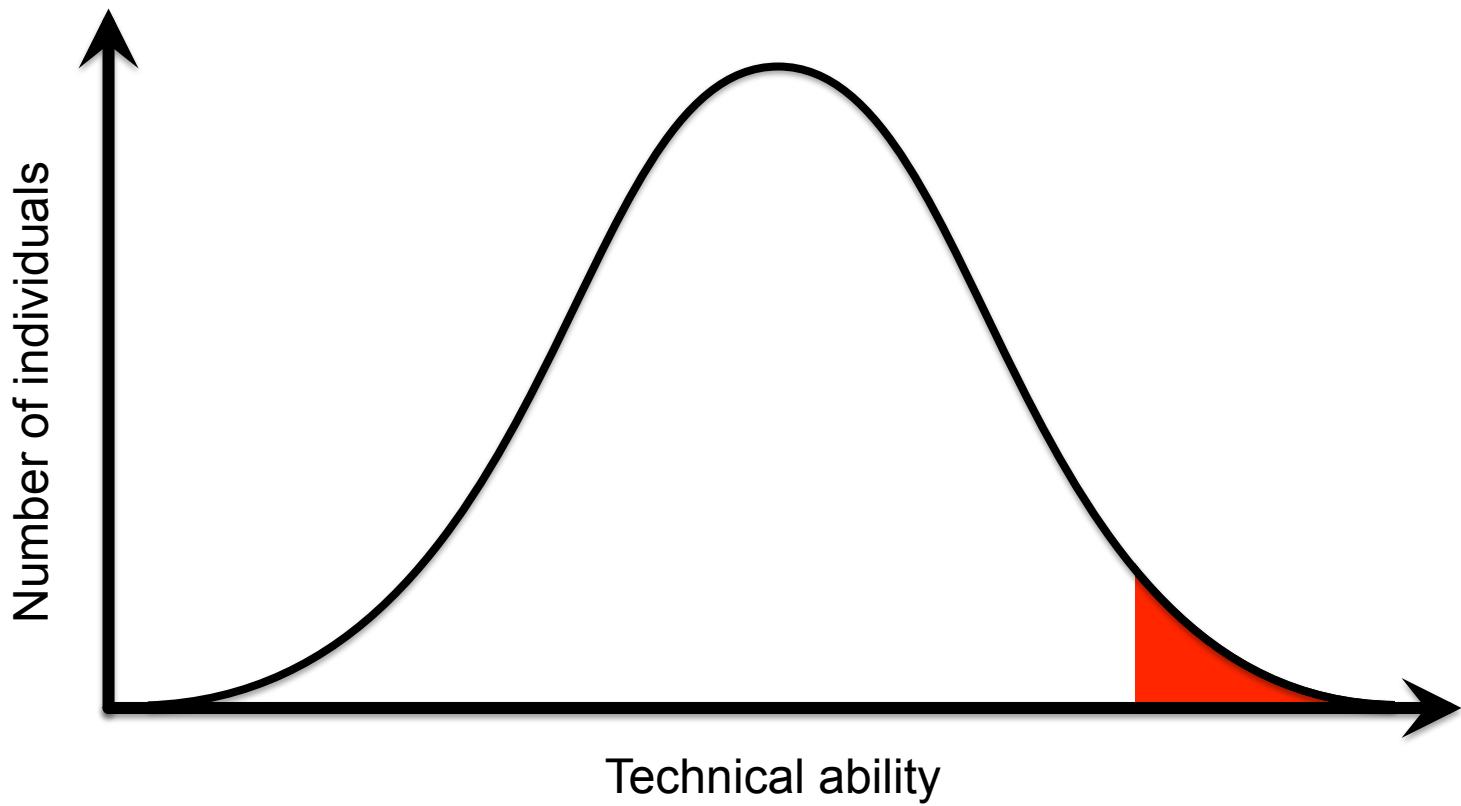
We need a robot designed for the classroom.



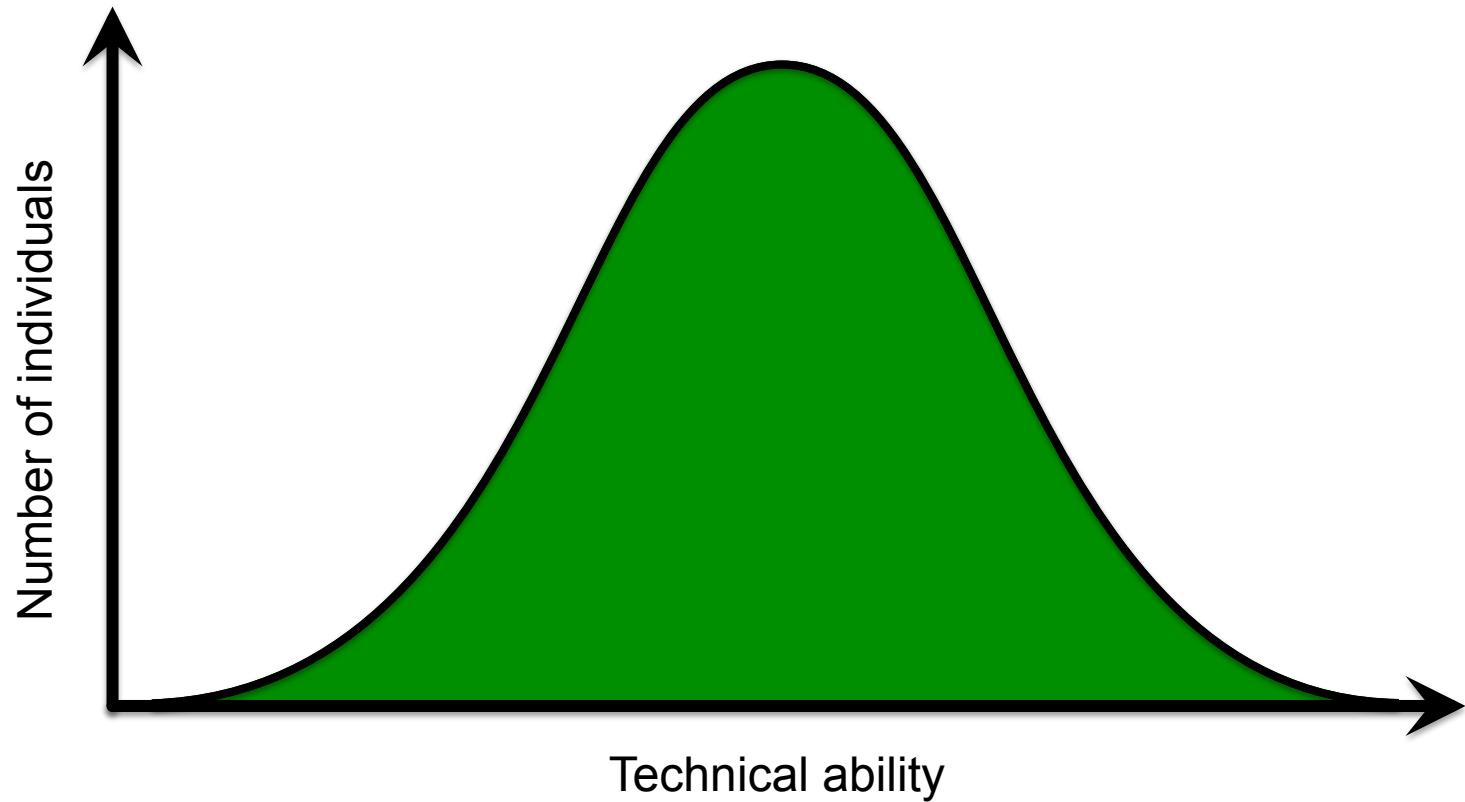
Most robots are too costly and complex.



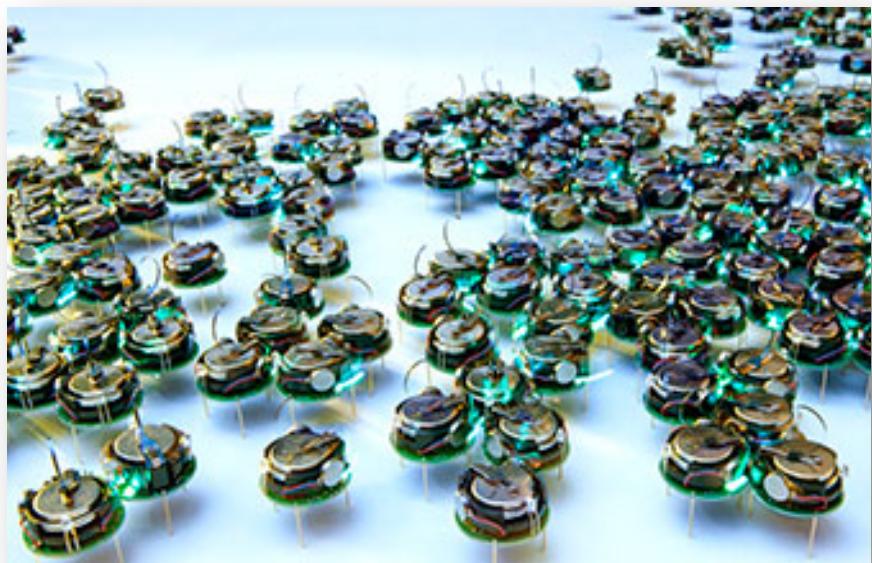
They are designed for a subset of the population.



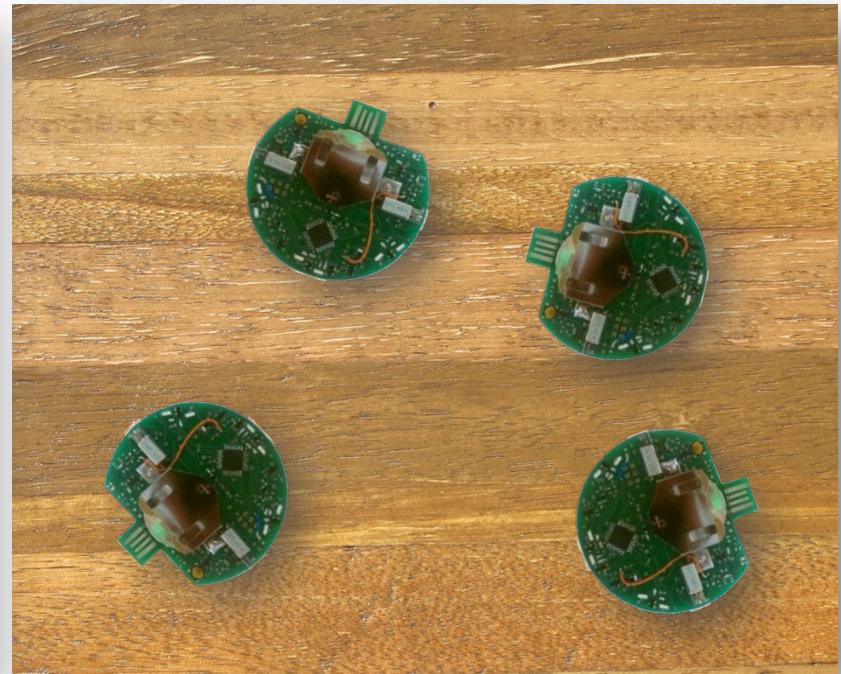
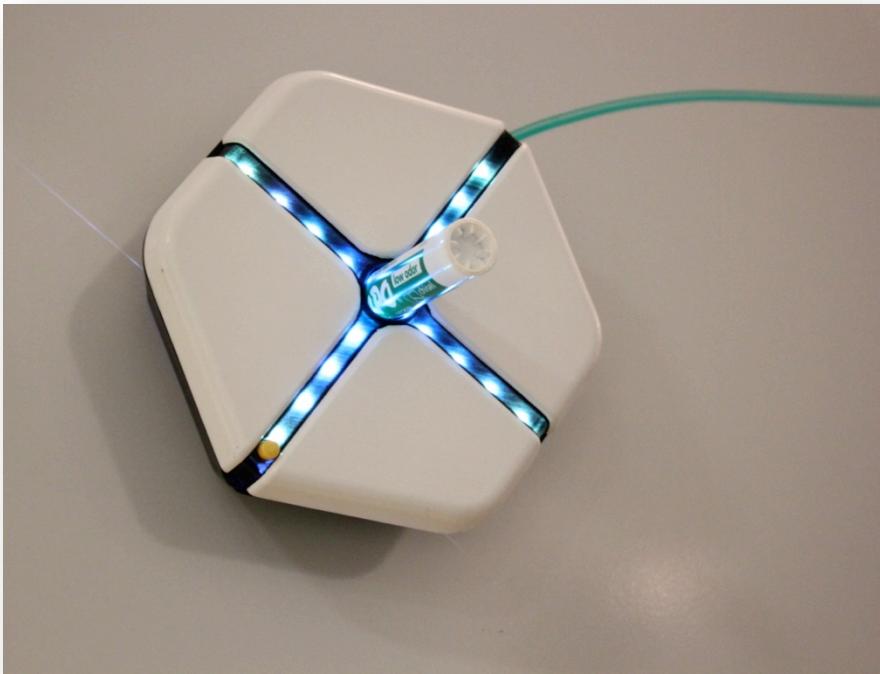
Educational robots need to be accessible to everyone.



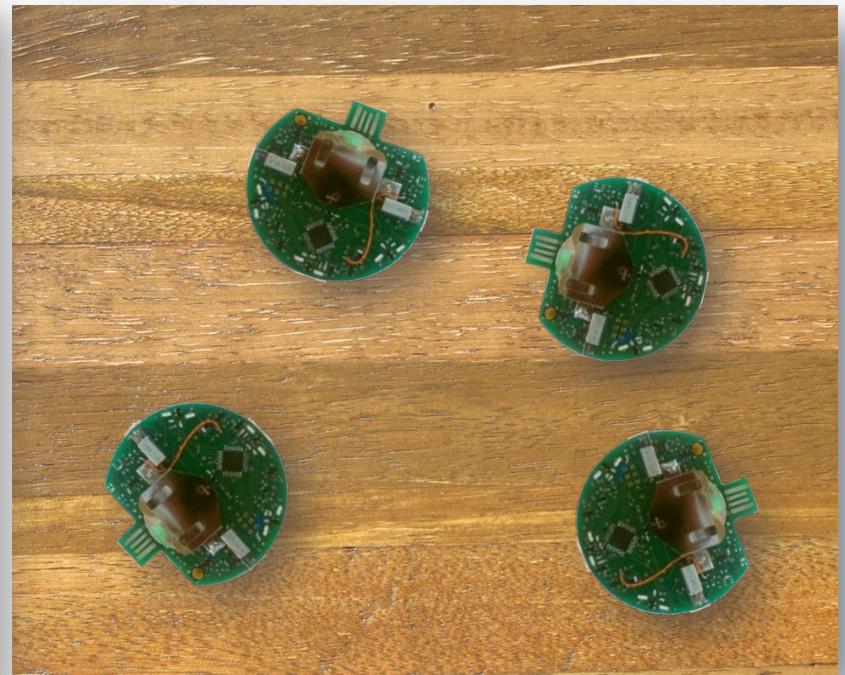
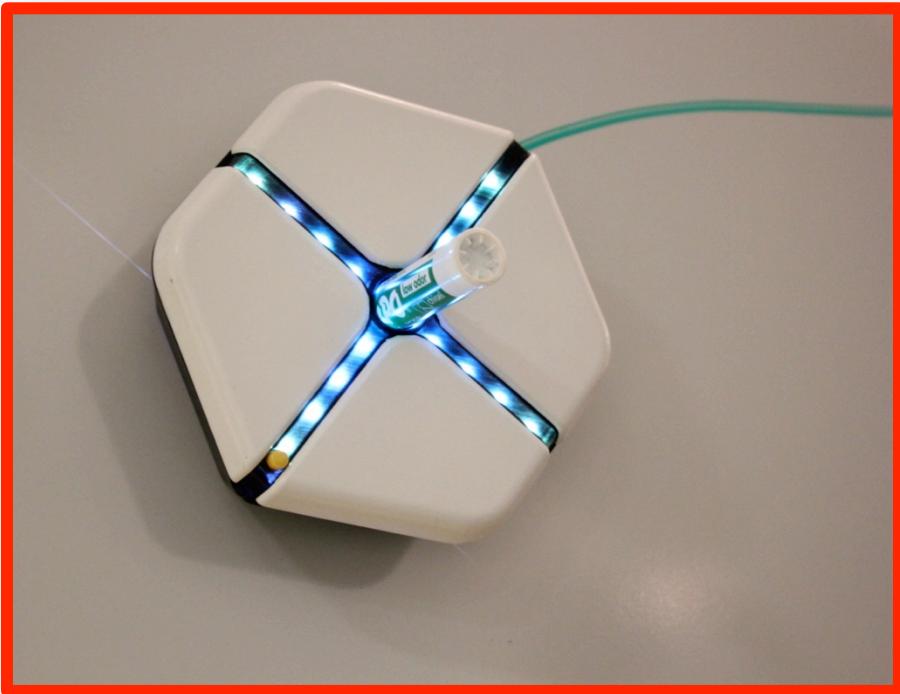
Based on research at Harvard in bioinspired robotics...



We are designing a new generation of educational tools.



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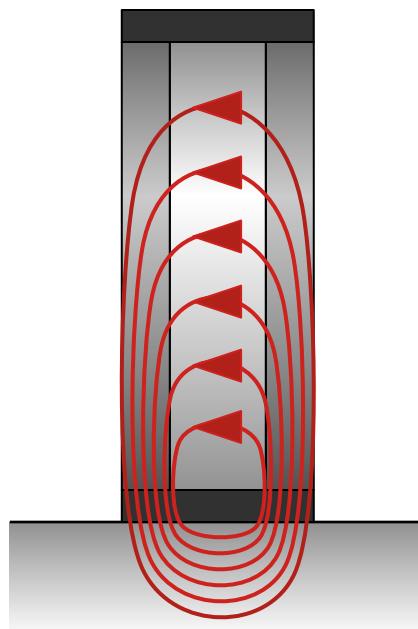
Something like this...

Meet the robot.



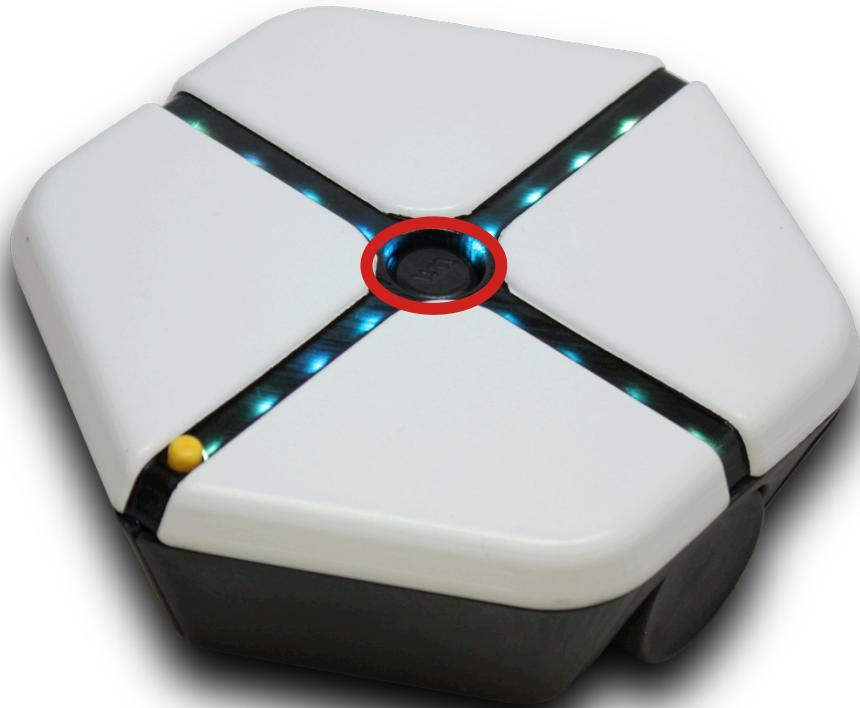
Meet the robot.

- Two magnetic wheels with force and position sensing



Meet the robot.

- Two magnetic wheels with force and position sensing
- Lift and drop mechanism for marker or eraser



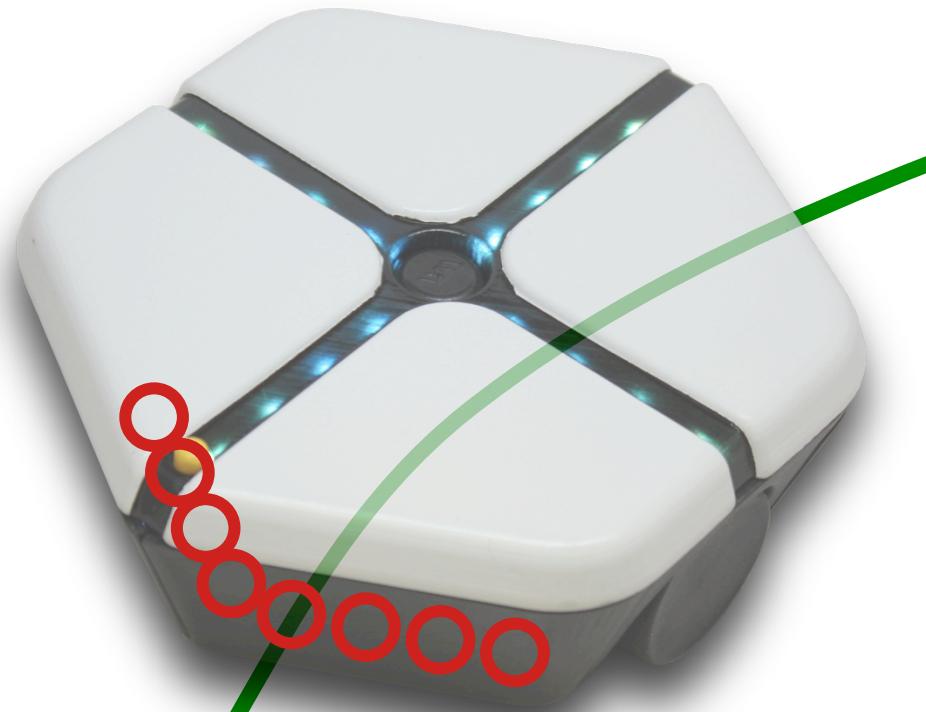
Meet the robot.

- Two magnetic wheels with force and position sensing
- Lift and drop mechanism for marker or eraser
- Left and right bumpers



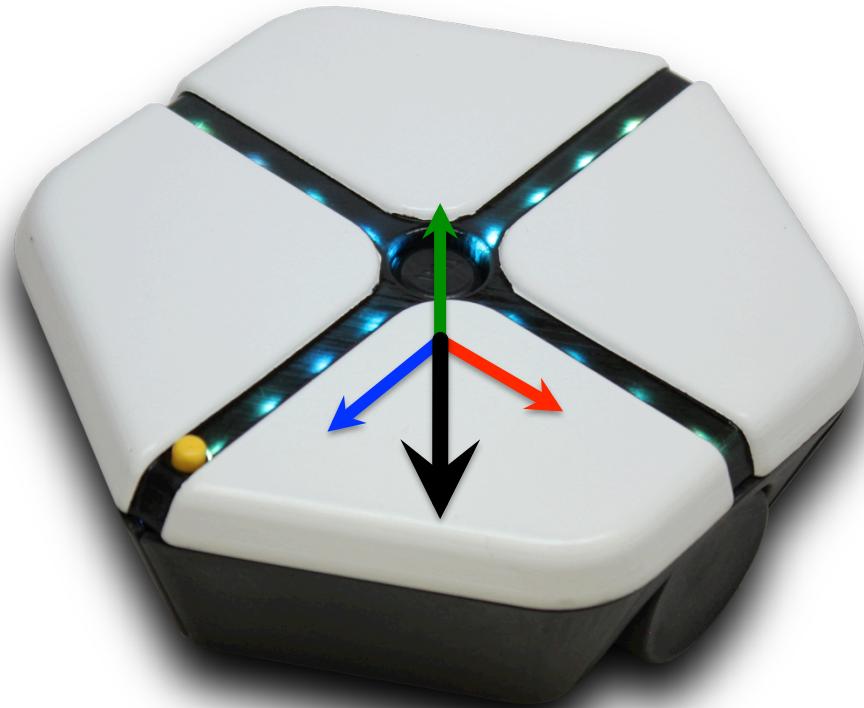
Meet the robot.

- Two magnetic wheels with force and position sensing
- Lift and drop mechanism for marker or eraser
- Left and right bumpers
- Array of color detecting sensors



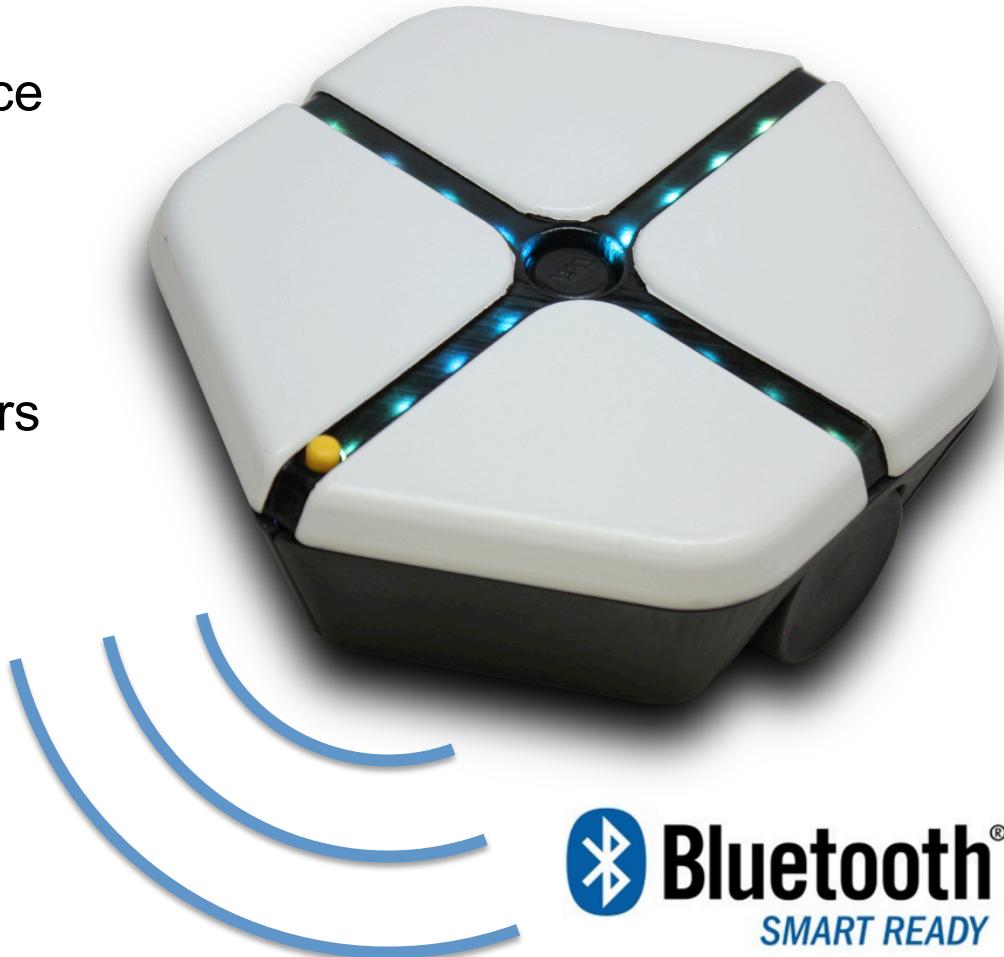
Meet the robot.

- Two magnetic wheels with force and position sensing
- Lift and drop mechanism for marker or eraser
- Left and right bumpers
- Array of color detecting sensors
- Accelerometer for orientation



Meet the robot.

- Two magnetic wheels with force and position sensing
- Lift and drop mechanism for marker or eraser
- Left and right bumpers
- Array of color detecting sensors
- Accelerometer for orientation
- Bluetooth 4.0 Low-Energy wireless



 **Bluetooth®**
SMART READY

Meet the robot.

- Two magnetic wheels with force and position sensing
- Lift and drop mechanism for marker or eraser
- Left and right bumpers
- Array of color detecting sensors
- Accelerometer for orientation
- Bluetooth 4.0 Low-Energy wireless
- Speaker for feedback



Meet the robot.

- Two magnetic wheels with force and position sensing
- Lift and drop mechanism for marker or eraser
- Left and right bumpers
- Array of color detecting sensors
- Accelerometer for orientation
- Bluetooth 4.0 Low-Energy wireless
- Speaker for feedback
- Colorful and dynamic lighting



Meet the robot.

- Two magnetic wheels with force and position sensing
- Lift and drop mechanism for marker or eraser
- Left and right bumpers
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- Accelerometer for orientation
- Bluetooth 4.0 Low-Energy wireless
- Speaker for feedback
- Colorful and dynamic lighting
- Dry erase top for customization



Meet the robot.

- Two magnetic wheels with force and position sensing
- Lift and drop mechanism for marker or eraser
- Left and right bumpers
- Array of color detecting sensors
- Accelerometer for orientation
- Bluetooth 4.0 Low-Energy wireless
- Speaker for feedback
- Colorful and dynamic lighting
- Dry erase top for customization
- Replaceable AA batteries



...all for the cost of a textbook.



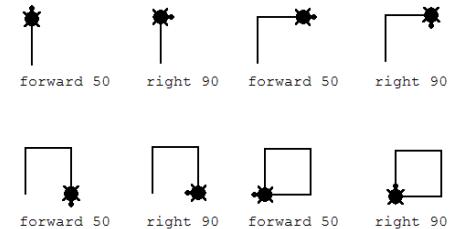
Robust hardware

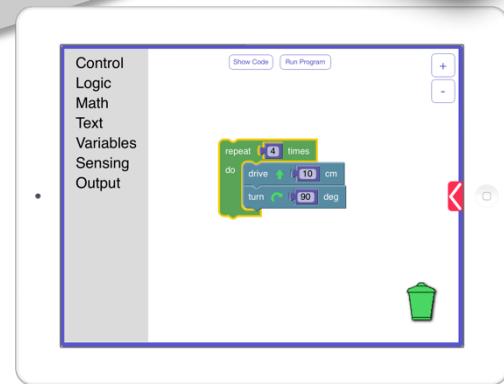
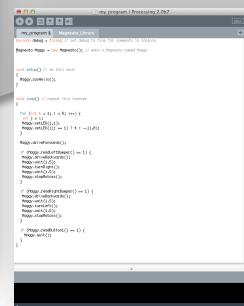
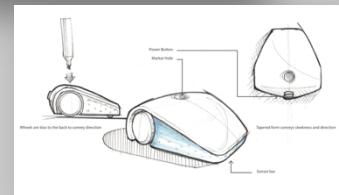
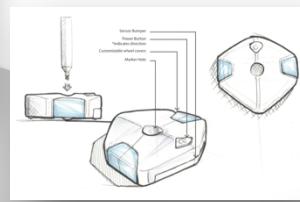
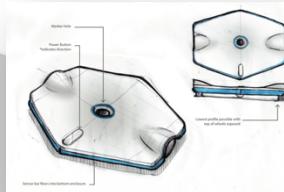
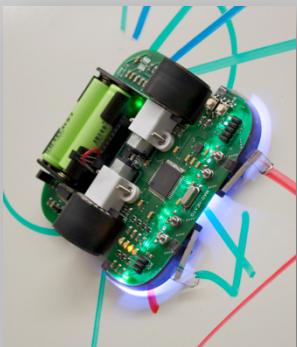
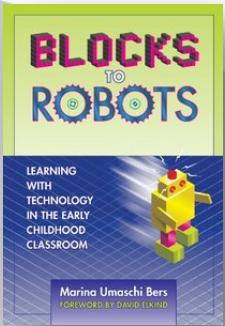


Intuitive software



Relevant curriculum





By designing engaging learning experiences for the classroom, we hope Wyss robots will excite and inspire the next generation of innovators.



Questions?

