## Introduction to TETRIX®

Pitsco Education is pleased to bring you this *TETRIX® Builders Guide*.

This resource has been created to:
- Help new users become familiar with the TETRIX Base Kit and how it can be used to create original robot designs.
- Provide an initial four-hour introductory experience, allowing users to successfully build and operate a R/C controlled robot.
- Provide educators with up to 20 hours of standards-based, hands-on activity resources for the classroom.
- Build confidence and generate enthusiasm for the fields of engineering and robotics.

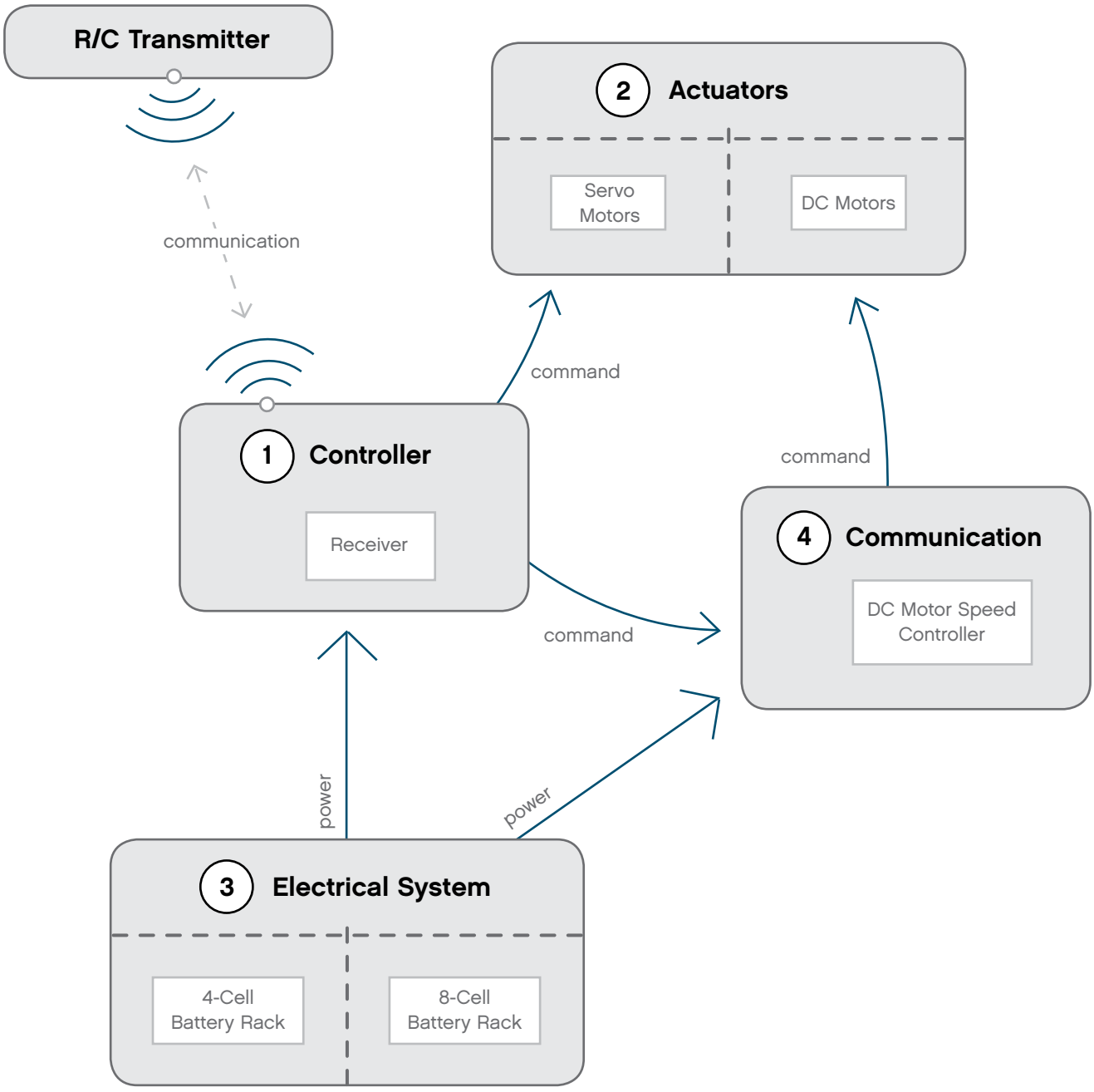
**The TETRIX System:**
- Uses elements made from heavy-duty, aircraft-grade aluminum to maximize stability and reliability.
- Uses powerful drive motors that drastically increase the capabilities of TETRIX robots.
- Offers flexibility in build design and can be expanded using additional materials.
- Gives users the opportunity to master the concepts of wiring, motor control, and much more.
- Fosters creativity and ingenuity amongst students.
- Develops engineering and problem-solving skills.

The TETRIX Base Kit contains essential hardware and tools that allow users to build a base robot. Additional parts and tools can be added to create bigger or more complicated robots. These can be found at **www.Pitsco.com**.

Another resource available to users is **www.TETRIXrobotics.com**. This web site contains a wealth of knowledge on the TETRIX building system, including sub-builds, technical specifications, classroom project ideas, videos, and more.

The TETRIX Builders Guide includes sample build instructions, demonstration videos, and other support resources, including lesson plans, to get robots up and running quickly.

## The Fundamentals of Robotics Using TETRIX®



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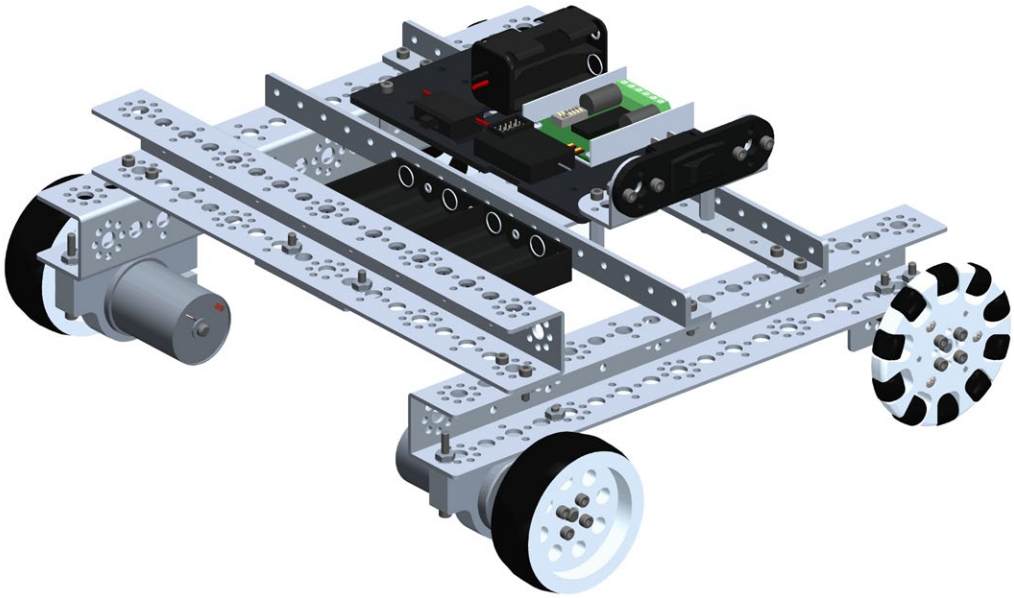
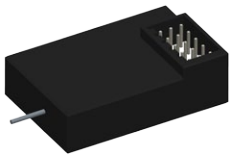


### 1. Controller

The controller is the backbone of a robot. TETRIX® robots will use the R/C Receiver, which sends commands to the actuators.



R/C Receiver

### 2. Actuators

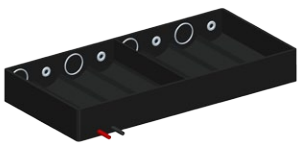
Actuators allow the robot to move or to move objects in its environment. Actuators in this set include:

DC Motors

Servo Motors with Horn

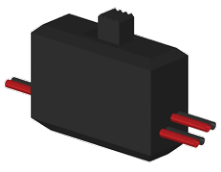
### 3. Electrical System

The electrical system provides power to the actuators. It includes:



8x AA Battery Holder

4x AA Battery Holder



Power Switch

Wires

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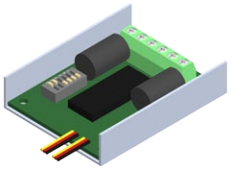
**4. Communication System**

The communication system allows the driver to communicate with the robot. The communication system includes:

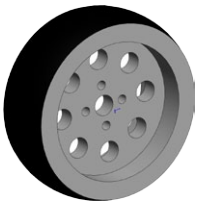
R/C Transmitter



DC Motor Speed Controller

**5. Building Components**

These key components allow the robot to carry out movement and actions, such as driving around and picking up objects. Components include:



Wheels

Omni Wheels
(These can move in any direction.)

TETRIX® Elements
(These metal elements are strong and sturdy.)