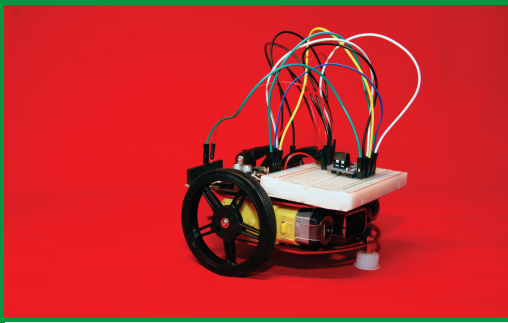


Science and  
Engineering Fair  
Edition



25 Classroom Projects

Published by Gearbox Labs, Inc.  
sales@gearboxlabs.org

# The ARDUINO® Classroom

## Inside the Book

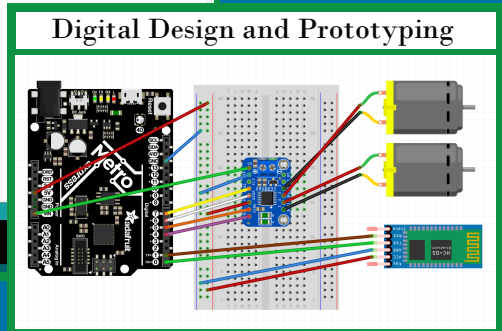
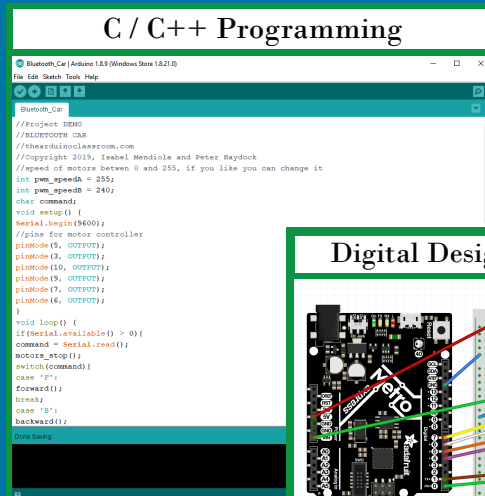
- 25 Classroom Tested Projects
- Science and Engineering Fair Focus
- Standards Alignments
- 100+ Project Extensions
- Materials Lists
- Tested Code
- Technical Diagrams and Photos
- Assessments

## Integrates

- Science and Engineering Processes
- C / C++ Programming Basics
- Digital Prototyping
- Engineering Design
- Data Collection and Analysis

## Free with Website Registration

- Project Updates
- Community Ideas
- Project Submissions



María Isabel  
Mendiola Ramírez  
and  
Peter G. Haydock

[www.thearduinoclassroom.com](http://www.thearduinoclassroom.com)

## Premium Website Membership

- Videos of Projects
- Classroom Presentations
- Images, Diagrams, and Code



Integrating programming, design,  
and prototyping into Science,  
Technology, Engineering, Arts, and  
Math (STEAM) classrooms with more  
advanced Arduino® based projects.

Anticipated Fall 2020 Publication.  
 Projects, Time to Complete, Difficulty, and Alignments Subject to Change.

## Projects Overview

	Project	Time to Complete (hr:min) Project / Extensions	Difficulty	Science				Technology	Engineering	Allied Arts	Math
				Earth	Life	Chemistry	Physics				
<b>Section 1</b> <b>Wi-Fi</b>	Earth Sci.: Weather	1:00 /0:45	Intermediate	✓	✓		✓	✓	✓	✓	✓
	Ecology: Water	0:45 /0:45	Intermediate	✓	✓	✓	✓	✓	✓	✓	✓
	Physics: Motion	0:30 /0:45	Intermediate				✓	✓	✓	✓	✓
	Physics: Light	0:30 /0:45	Intermediate	✓	✓		✓	✓	✓	✓	✓
	Earth Sci.: Soils	0:45 /0:45	Intermediate	✓	✓	✓	✓	✓			✓
	Biology: Plants	0:30 /0:45	Advanced		✓		✓	✓	✓	✓	✓
	Biology: Behavior	0:45 /0:45	Advanced		✓		✓	✓	✓	✓	✓
	Chemistry	0:45 /0:45	Intermediate	✓	✓	✓	✓	✓	✓	✓	✓
	Biology: Physiology	0:30 /0:45	Advanced		✓		✓	✓	✓	✓	✓
	Chemistry: Gases	0:45 /0:45	Intermediate	✓		✓	✓	✓	✓	✓	✓
	Biology: Senses	0:45 /0:45	Intermediate		✓		✓	✓	✓	✓	✓
	Earth Science: Seismometer	1:00 /0:45	Intermediate	✓	✓		✓	✓	✓		✓
	<b>Section 2</b> <b>Bluetooth</b>	Civil: Smart City	2:00 /2:00	Intermediate	✓	✓		✓	✓	✓	✓
Civil: Smart Home		2:00 /2:00	Intermediate	✓	✓	✓	✓	✓	✓	✓	✓
Biomedical: Robotic Hand		2:00 /2:00	Intermediate		✓		✓	✓	✓		✓
Industrial: Color Sorter		0:45 /0:45	Intermediate				✓	✓	✓	✓	✓
Civil: Smart Trash		0:45 /0:45	Intermediate	✓	✓		✓	✓	✓	✓	✓
Biomedical: Muscle Rehabilitation		1:15 /0:45	Intermediate		✓		✓	✓	✓	✓	✓
Mechanical: Solar Tracker		0:45 /0:45	Advanced	✓			✓	✓	✓		✓
Electrical: LED Signs		0:45 /0:45	Advanced	✓	✓		✓	✓	✓	✓	✓
Electrical: Security System		1:15 /0:45	Intermediate		✓	✓	✓	✓	✓		✓
Agricultural: Tomato Farm		1:15 /0:45	Intermediate	✓	✓	✓	✓	✓	✓	✓	✓
Mechanical: Water Dispenser		1:15 /0:45	Intermediate	✓	✓		✓	✓	✓	✓	✓
Automotive: Hand Gesture Control		1:15 /0:45	Advanced		✓		✓	✓	✓	✓	✓
Electrical: Fingerprint Attendance		2:00 /2:00	Intermediate		✓		✓	✓	✓	✓	✓

✓ = Full match to standards  
 ✓ = Supports standards with extensions  
 ✓ = Supports standards with problem