Internet of Things Edition

25 Classroom Projects

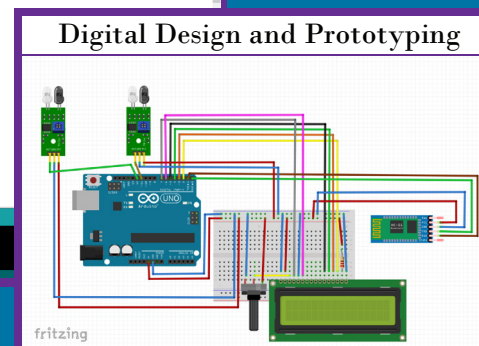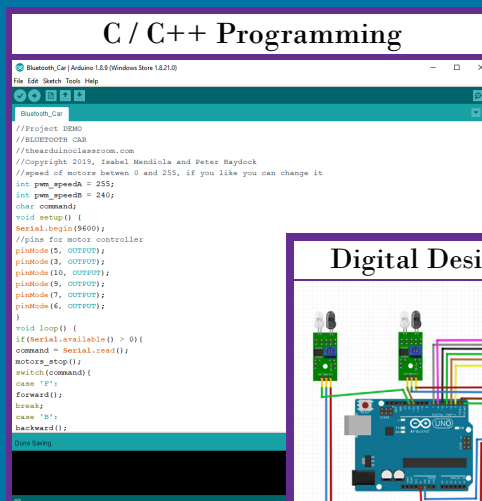# The STEAM+C Classroom

Inside the Book
- 25 Classroom Tested Projects
- Wi-Fi®, Bluetooth®, GPS, & Cellular
- Standards Alignments
- 100+ Project Extensions
- Materials Lists
- Tested Code
- Technical Diagrams and Photos
- Assessments

Integrates
- STEAM
- C / C++ Programming Basics
- Digital Prototyping
- Engineering Design
- Project Management

Free with Website Registration
- Project Updates
- Community Ideas
- Project Submissions

Premium Website Membership
- Videos of Projects
- Classroom Presentations
- Images, Diagrams, and Code

C / C++ Programming

Digital Design and Prototyping

fritzing

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www.thesteampluscclassroom.org

INTERNET OF THINGS EDITION

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

Projects Overview

Legend: ✓ = Full match (green), ✓ᴱ = Supports with extensions (purple), ✓ᴾ = Supports with problem (orange)

Section	Project	Time to Complete (hr:min) Project / Extensions	Difficulty	Science — Earth	Science — Life	Science — Chemistry	Science — Physics	Technology	Engineering	Allied Arts	Math
Section 1 **Bluetooth®**	Voice Controlled Lights	0:45 /0:45	Intermediate	✓	✓ᴱ		✓	✓	✓	✓	✓
	Remote LCD	1:00 /0:45	Intermediate	✓	✓ᴱ	✓	✓	✓	✓	✓	✓
	Text an LED Matrix	1:00 /0:45	Intermediate				✓	✓	✓	✓	✓
	Speedometer	1:15 /0:45	Intermediate		✓		✓	✓	✓	✓ᴾ	✓
	Robot	1:30 /0:45	Intermediate	✓ᴱ	✓		✓	✓	✓	✓	✓
	Robotic Arm	1:30 /0:45	Advanced	✓ᴱ	✓		✓	✓	✓	✓	✓
	Voice Controlled Car	1:45 /0:45	Advanced	✓ᴱ	✓ᴱ	✓ᴱ	✓	✓	✓	✓	✓
	Drone	1:45 /0:45	Intermediate	✓	✓ᴱ	✓ᴱ	✓	✓	✓	✓ᴾ	✓
	Health Monitor	1:30 /1:00	Advanced	✓	✓	✓	✓	✓	✓	✓	✓
	Home Control	1:00 /0:45	Intermediate	✓ᴱ	✓ᴱ	✓ᴱ	✓	✓	✓	✓	✓
	Environmental Monitoring	1:45 /1:00	Intermediate	✓	✓	✓	✓	✓	✓	✓	✓
Section 2 **Wi-Fi®**	Remote Home Control	1:00 /0:45	Intermediate	✓	✓	✓ᴱ	✓	✓	✓		✓
	Water Monitoring	1:30 /1:00	Intermediate	✓	✓	✓	✓	✓	✓		✓
	Text the LED	1:30 /0:45	Intermediate	✓	✓	✓ᴱ	✓	✓	✓	✓	✓
	Smoke & Gas Notifier	1:30 /1:00	Intermediate	✓	✓	✓	✓	✓	✓		✓
	Fido Feeder	1:30 /0:45	Intermediate	✓ᴱ	✓ᴱ	✓ᴱ	✓	✓	✓	✓	✓
	Robotic Hand	1:30 / 1:00	Intermediate	✓	✓	✓	✓	✓	✓	✓	✓
	Food Quality	1:30 /1:00	Intermediate	✓ᴱ	✓ᴱ	✓ᴱ	✓	✓	✓	✓	✓
	Trash Sorter	2;00 /1:00	Advanced		✓	✓	✓	✓	✓	✓	✓
	Weather Station	1:45 /1:00	Advanced	✓	✓	✓	✓	✓	✓	✓	✓
Section 3 **Cellular and GPS**	Fire Alarm	1:30 /0:45	Intermediate	✓	✓	✓	✓	✓	✓		✓
	Location Data	1:30 /0:45	Intermediate	✓	✓	✓	✓	✓	✓	✓ᴾ	✓
	Agriculture	2:00 /1:00	Intermediate	✓ᴱ	✓ᴱ	✓ᴱ	✓	✓	✓		✓
	SMS and Calls	1:30 /1:00	Advanced	✓ᴱ	✓ᴱ	✓ᴱ	✓	✓	✓	✓	✓
	Gas Leak	1:30 /1:00	Intermediate	✓	✓	✓	✓	✓	✓	✓	✓

✓ = Full match to standards (green) ✓ᴱ = Supports standards with extensions (purple) ✓ᴾ = Supports standards with problem (orange)

The Arduino Classroom § 2