



BLINKING
AN LED

READING A
POTENTIOMETER

READING A
PHOTORESISTOR

RGB NIGHT-LIGHT

A

B

C

D

PROJECT 1

Welcome to your first SparkFun Inventor's Kit project. Each **project** is broken up into several **circuits**, the last circuit being a culmination of the technologies that came before. There are five projects total, each designed to help you learn about new technologies and concepts. This first project will set the foundation for the rest and will aid in helping you understand the fundamentals of circuit building and electricity!

In Project 1, you will learn about **Light-Emitting Diodes (LEDs)**, **resistors**, **inputs**, **outputs** and **sensors**. The first project will be to build and program your own multicolored night-light! The night-light uses a sensor to turn on an RGB (Red, Green, Blue) LED when it gets dark, and you will be able to change the color using an input knob.

NEW IDEAS

Each project will introduce new concepts and components, which will be described in more detail as you progress through the circuits.

NEW COMPONENTS INTRODUCED IN THIS PROJECT

- LEDs
- RESISTORS
- POTENTIOMETERS
- PHOTORESISTORS

NEW CONCEPTS INTRODUCED IN THIS PROJECT

- POLARITY
- OHM'S LAW
- DIGITAL OUTPUT
- ANALOG VS. DIGITAL
- ANALOG INPUT
- ANALOG TO DIGITAL CONVERSION
- VOLTAGE DIVIDER
- PULSE-WIDTH MODULATION
- FUNCTIONS

YOU WILL LEARN

- HOW TO UPLOAD A PROGRAM TO YOUR REDBOARD
- CIRCUIT-BUILDING BASICS
- HOW TO CONTROL LEDs WITH DIGITAL OUTPUTS
- HOW TO READ SENSORS WITH ANALOG INPUTS