JUNKBOT
MAKE YOUR OWN ROBOTS

Robotics & Space Engineering Summer Camp

2-Week Summer Camp by Junkbot Robotics

8 Days, Mon-Thurs, 2 Hours each

Mission Control: Intro to Robotics & Space

Theory Basics

Robotics in space exploration

Microcontrollers in real missions

Hands-On Projects

Digital astronaut ID badges

Button-activated space icons
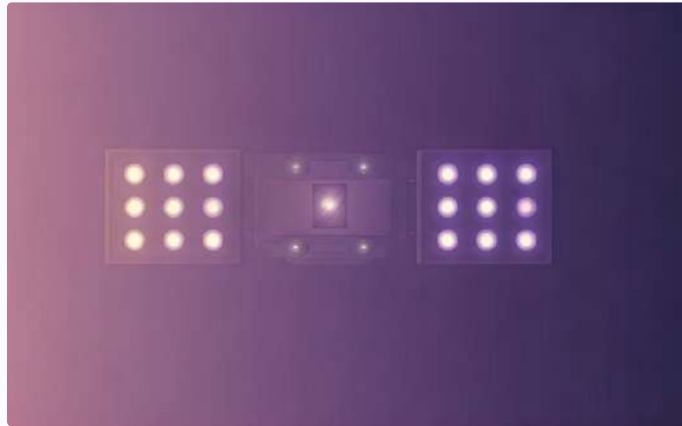
Mission patch LED animations

Lights in Space: Signal Systems

Spacecraft use various light systems to communicate status and information.

Theory: Communication

Spacecraft use lights to communicate and signal status between vehicles and to ground control.

Project: Color Code Communicator

Students will build systems that use different colored lights to transmit specific messages and status updates.

Project: Emergency Light System

Create functioning emergency beacons that activate under specific conditions to alert of potential hazards.

Sensors that Explore the Universe

Learn

How rovers detect movement, temperature, distance

Practice

Work with ultrasonic, motion, temperature sensors

Create

Build "Alien Detector" with multiple sensors

Robotic Movements: Servos in Space

Solar Panels

Program precise angle adjustments

Robotic Space Systems

Learn how spacecraft use servos

Instruments

Create alignment systems

Earth to Arduino

Arduino Basics

Intro to new controller

Block Coding

Program with mBlock interface

Space Monitor

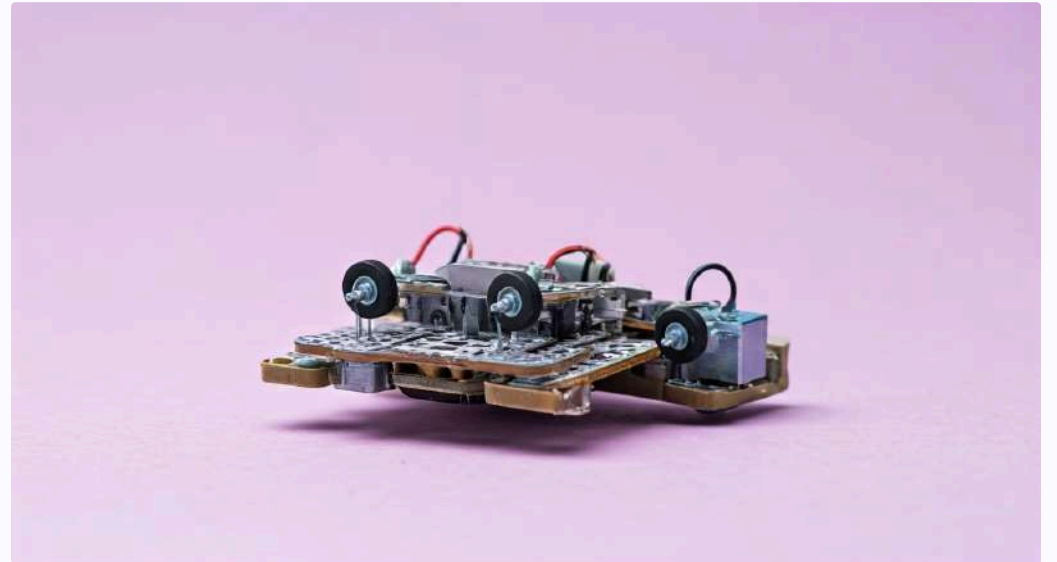Build temperature and proximity detector

Buzzers, Servos & Emergency Alerts

Theory Focus

Space stations use sound/movement alerts

Emergency systems protect astronauts

Project: Landing Gear

Combine servos and buzzers

Create timed deployment sequence

Security in Space: Smart Detection

Robot Protection

Learn how robots monitor surroundings

Motion Detection

Use PIR sensors to detect movement

Alert Systems

Create RGB lights and buzzer warnings

Project: Space Station Intruder Alarm with custom alert conditions

Mars Rover Build & Test Mission

Learn

How real Mars rovers navigate terrain

Build

Assemble mini rover with motors and sensors

Program

Code movement and obstacle detection

Test

Run rover mission on simulated Mars surface

What Students Experience

🚀 **Hands-On Learning**

Real space tech through fun robotics projects

⚙️ **Technical Skills**

Use controllers, sensors, motors, programming

🖋️ **Collaboration**

Solve problems in exciting space scenarios