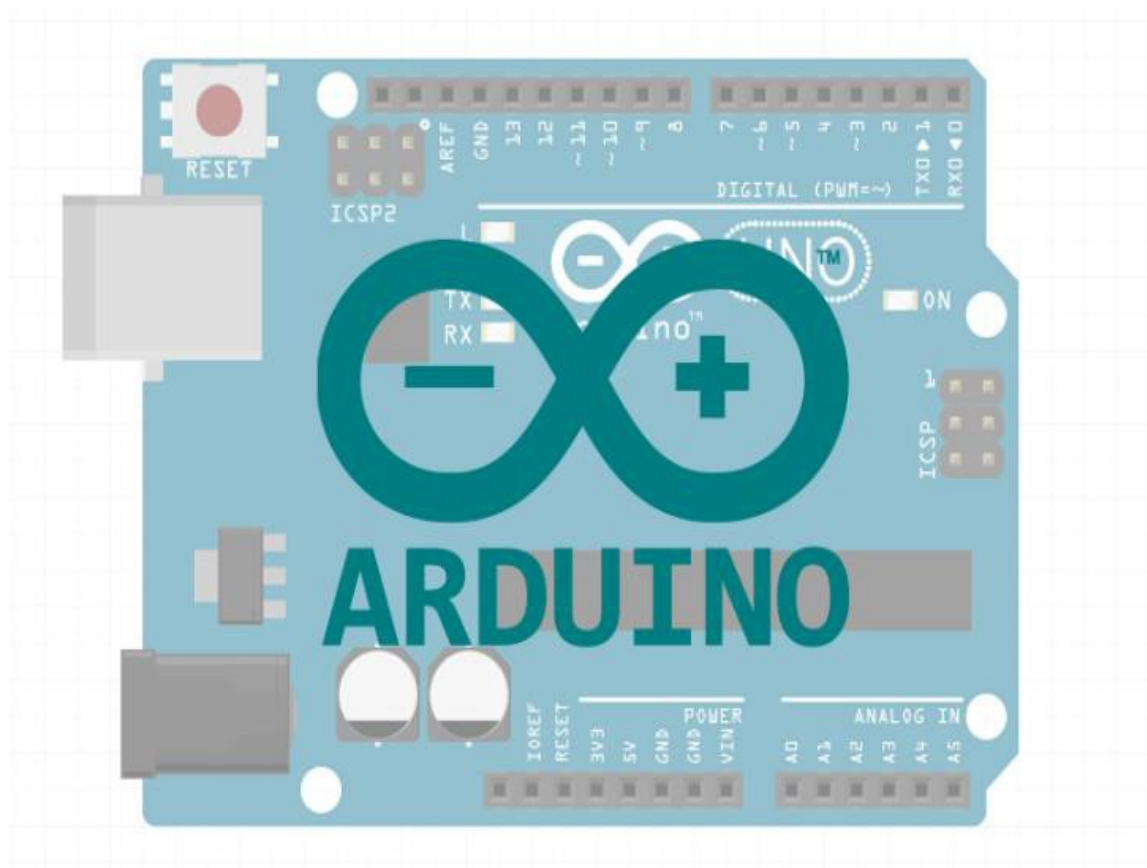


Arduino competition

(Game manual)



General Rules

- Teams must consist of 2–4 students.
- Arduino must be the core component of the project.
- Projects must be completed during the competition time.
- No components outside the given kit are allowed.
- Code must be written during the competition time only.
- Circuit must be implemented during the competition.
- Internet access is not permitted during the match.
- Projects must be functional and safe.
- Judges' decisions are final.

Age Categories:

- Lower Level: 13–15 years old
- Upper Level: 16–18 years old

Team Structure:

- Teams of 2–4 participants.

Competition Format:

- Each level will have 2 separate matches. In each match, teams must design and build a functional Arduino-based circuit and write the required code to meet the challenge criteria. The project idea is open-ended within the match theme, giving teams creative freedom.

Provided Component Kit:

- 1x Arduino Uno
 - 1x Breadboard
 - 1x Ultrasonic Sensor
 - 1x LCD
 - 1x LDR
 - 1x DHT11 Sensor
 - 3x Push Buttons
 - 6x LEDs , 1x RGB , 2x Seven Segment
 - 1x Buzzer
 - 1x Servo Motor , 2x DC Motors , 1xMotor Driver
 - 1x Potentiometer
 - Jumper Wires
 - Assorted Resistors
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Match Structure & Timing

- **Lower Level (13–15 years)**

- Match 1: Simple Smart Solution – 14 mins
- Match 2: One Input – Multiple Output – 14 mins

- Match 1 – "Simple Smart Solution"

- Solve a basic real-world problem using one sensor and one output.
- Examples: Auto LED with LDR, Buzzer Alert with Button.
- Time: 7 mins for implementing the circuit and 7 mins for the code (totally 14 mins)

- Match 2 – "One Input – Multiple Output"

- Use a single input to trigger multiple outputs.
- Examples: Button activates LED sequence.
- Time: 7 mins for implementing the circuit and 7 mins for the code (totally 14 mins)

- **Upper Level (16–18 years)**

- Match 1: Interactive System Design – 28 mins
- Match 2: Smart Control with Logic – 28 mins

- Match 1 – "Interactive System Design"
 - Build a real-use-case interactive system using multiple components.
 - Examples: Motion alarm, Auto-door system.
 - Time: 8 mins for implementing the circuit and 20 mins for the code (totally 28 mins)
- Match 2 – "Smart Control with Logic"
 - Create a project with logical conditions and complex responses.
 - Examples: Multi-condition triggers, Button counter.
 - Time: 8 mins for implementing the circuit and 20 mins for the code (totally 28 mins)

Scoring Criteria (per Match):

- **Lower Level:**
 - Functional Circuit: 20 pts
 - Basic Code Logic and readability : 20 pts
 - Creative Use of Components: 20 pts
 - Neat Wiring & Layout: 20 pts
 - Team Presentation: 20 pts
- Total: 100 pts + Time Bonus

- **Upper Level:**

- Functional & Stable System: 25 pts
- Advanced Logic and readability of the Code: 20 pts
- Integration of Multiple Components: 20 pts
- Innovation and Creativity: 25 pts
- Presentation & Explanation: 10 pts

Total: 100 pts + Time Bonus

Judging Notes:

- Points are awarded based on completed function and clear understanding.
- Bonus points for finishing 5 mins early take(+5), finishing 1-2 mins early take(+2), finishing 3-4 mins early take(+4), finishing on time take(+0), finishing late or incomplete take(-5).
- If two teams got the same score then who finished early will be ranked higher.

Safety Precautions:

Avoid short circuits or unsafe wiring.

Ask judges for help if unsure.