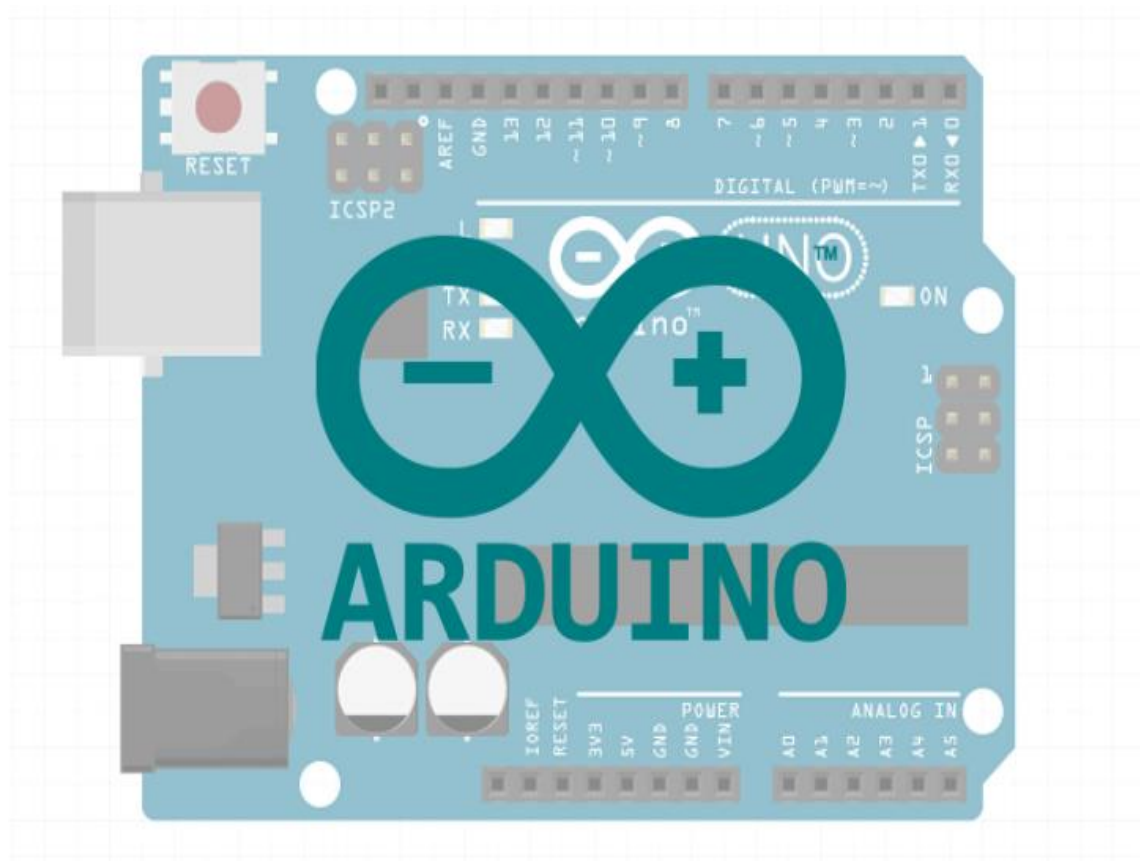# Arduino competition
# (Game manual)

# General Rules

- Teams must consist of 2–3 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.

- Internet access is not permitted during the match.

- Teams may bring printed reference materials.

- 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 LDR

- 1x DHT11 Sensor

- 3x Push Buttons

- 6x LEDs

- 1x Buzzer

- 1x Servo Motor

- 1x Potentiometer

-  Jumper Wires

- Assorted Resistors

# Match Structure & Timing

- **Lower Level (13–15 years)**

- Match 1: Simple Smart Solution – 45 mins

- Match 2: One Input – Multiple Output – 45 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: 45 minutes

- Match 2 – "One Input – Multiple Output"

- Use a single input to trigger multiple outputs.

- Examples: Button activates LED sequence.

- Time: 45 minutes

- **Upper Level (16–18 years)**

- Match 1: Interactive System Design – 60 mins

- Match 2: Smart Control with Logic – 60 mins

- Match 1 – "Interactive System Design"

- Build a real-use-case interactive system using multiple components.

- Examples: Motion alarm, Auto-door system.

- Time: 60 minutes

- Match 2 – "Smart Control with Logic"

- Create a project with logical conditions and complex responses.

- Examples: Multi-condition triggers, Button counter.

- Time: 60 minutes

# Scoring Criteria (per Match):

- **Lower Level:**

- Functional Circuit: 20 pts

- Basic Code Logic: 20 pts

- Creative Use of Components: 20 pts

- Neat Wiring & Layout: 20 pts

- Team Presentation: 20 pts

Total: 100 pts

- **Upper Level:**

- Functional & Stable System: 25 pts

- Advanced Logic in Code: 25 pts

- Integration of Multiple Components: 20 pts

- Innovation and Creativity: 20 pts

- Presentation & Explanation: 10 pts

Total: 100 pts

# Judging Notes:

- Points are awarded based on completed function and clear understanding.

- Bonus points may be awarded for exceptional innovation (+5).

- Incomplete but correctly attempted projects may receive partial credit.

# Safety Precautions:

Avoid short circuits or unsafe wiring.

Ask judges for help if unsure.