# Final Project: Cat and Mouse Game

Create a Cat and Mouse Game for two players. The system uses two Arduinos and a 0.96" OLED display. You will work in a team of two people.

**Components needed:**

- 2 Arduinos
- OLED display using the SSD1306 controller
- Any input device of your choice

**System detail:**

1. Use one Arduino for the master controller for controlling the OLED display screen and the user inputs for player 1 playing as the *"mouse"*. You can use any input methods you choose to move the mouse around the screen. You can create any icon to represent the mouse on the screen. [1]

2. Use a second Arduino for controlling the user inputs for player 2 playing as the *"cat"*. You can use any input methods you choose to move the cat around the screen that is attached to the first Arduino. You can create any icon to represent the cat on the screen.

3. The two Arduinos will communicate with each other using the Serial RS232 protocol. You can decide on how to encode the commands to send between the two Arduinos.

4. The cat will try to catch the mouse, and the mouse will try to run away from being caught. The game is over when the cat catches the mouse three times, i.e. the cat icon touches the mouse icon.

5. Display how many times the cat has caught the mouse and the elapse time for the game on the bottom of the screen.

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[1] Grading: The first five people to finish everything get 5 points. Then next five people get 4 points. The next five people to finish everything get 3 points. Total points possible are 5.

**OLED connections:**



| OLED pins | Arduino pins | Description |
|-----------|--------------|-------------|
| SCL | A5 | SCL |
| SDA | A4 | SDA |
| GND | GND | Ground |
| VCC | 5V | Power |

Use the following three libraries to control the OLED

- **Adafruit_SSD1306 library**

  http://www.robotsforfun.com/libraries/Adafruit_SSD1306.zip

- **Adafruit_GFX_Library library**

  http://www.robotsforfun.com/libraries/Adafruit_GFX_Library.zip

- **Adafruit_BusIO library**

  http://www.robotsforfun.com/libraries/Adafruit_BusIO.zip