

DIY Game Console

Downloading and Programming games

The [XC3752](#) Game console is functionally similar to the arduboy open source game system found here:

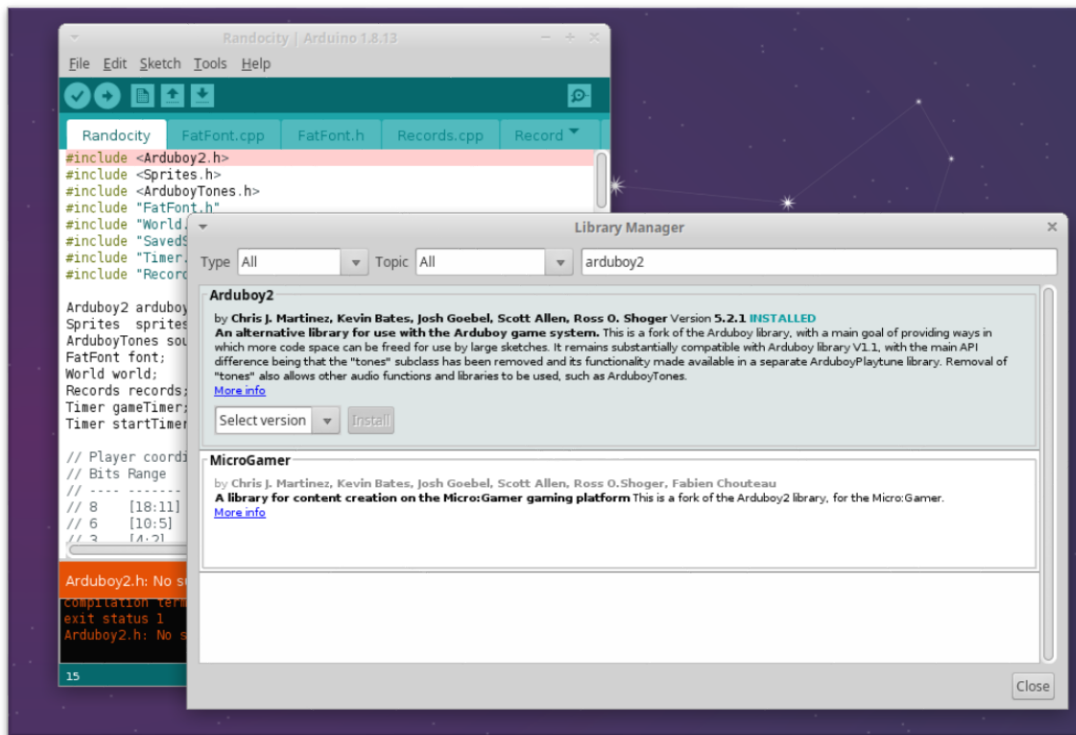
- <https://arduboy.com/>

On this site, you will find a wealth of resources including games, tutorials, and forums to look through. Programming games are easy, as the games are usually provided with a `.ino` file for you to load up into the Arduino IDE.

The only files you need to make sure you have, when programming with the Arduino, are the arduboy libraries as shown:

Library	Version	Author
Arduboy2	5.2.1	Chris J. et al.
ArduboyTones	1.0.3	Scott Allen

in addition to whatever libraries that particular game will need. When connecting it up to the Arduino IDE, simply choose "**Leonardo**" as the board type.



Example Game – RandoCity

We can download and practise with this game.

- <https://community.arduboy.com/t/randocity-a-large-open-world-motorcycle-game/8375>

From downloading the game, we can find the `.ino` file that it has included with it, and upload that using the Arduino IDE. This contains the complete source code of the game.

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Modifying the game (aka: making your own cheats)

When you have the source code of the game, you have complete control over it, which is why the source code is so important to keep, protect, and respect.

Remember to always respect open source software licenses.

The Randocity game that we have downloaded above is released under the permissive MIT license (<https://github.com/pmwasson/Randocity/blob/master/LICENSE>) so we are allowed to modify the game how we see fit, as long as we do not remove the license.

For our purposes though, we will make a simple cheat:

- When the user presses the “up” button, they will teleport to a random location.

Add the following code to the bottom of the Randocity.ino file:

```
void cheat() {
  playerX = ((playerX >> 11) + random(-5,5)) << 11;
  playerY = ((playerY >> 11) + random(-5,5)) << 11;
}
```

Then find the “gameLoop()” function (hint: around line 650) and scroll down until you see multiple if statements checking the function of buttons, we simply want to put our code here, when the user has “just pressed” the up button, like such:

```
// Line 681 of Randocity.ino:
if (arduboy.justPressed(RIGHT_BUTTON)) {
  playerDirection = (Direction) ((playerDirection == northwest) ?
  north :
  playerDirection + 1
);
  soundTurn();
}

if (arduboy.justPressed(LEFT_BUTTON)) {
  playerDirection = (Direction) ((playerDirection == north) ?
  northwest :
  playerDirection - 1
);
  soundTurn();
}
// Call our "cheat" code when the user has just pressed UP =====
if (arduboy.justPressed(UP_BUTTON)) {
  cheat();
  soundTurn();
}
//=====
```

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