

Programming for Zooids with Processing

Get Processing



<https://processing.org/download/>

Download Zoids Software

- Contains ZoidManager and the API for Processing
- All the material for Zoids is available at:

<https://github.com/ShapeLab/SwarmUI>

Connect the Receiver

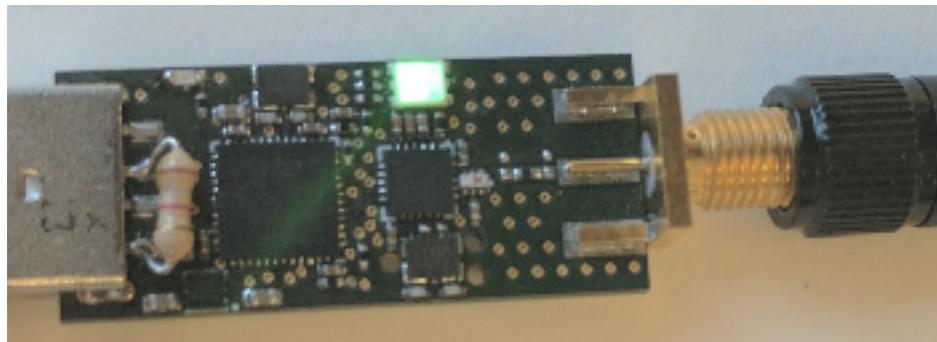
- Color indicator: Red - Problem during the initialization
Disconnect and reconnect

Connect the Receiver

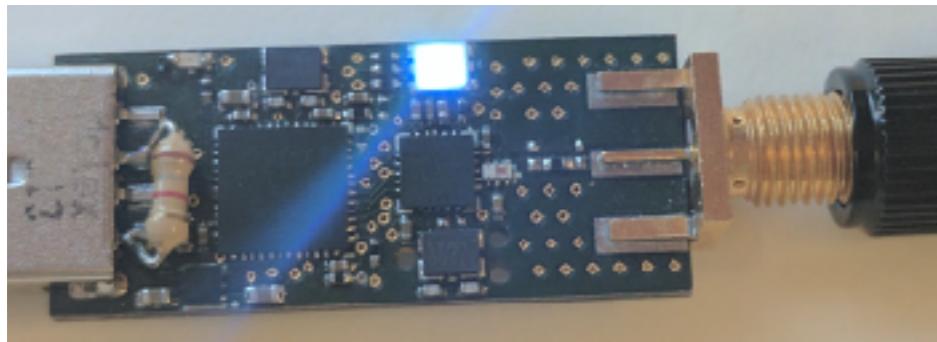
- Color indicator: Red - Problem during the initialization
Disconnect and reconnect

Connect the Receiver

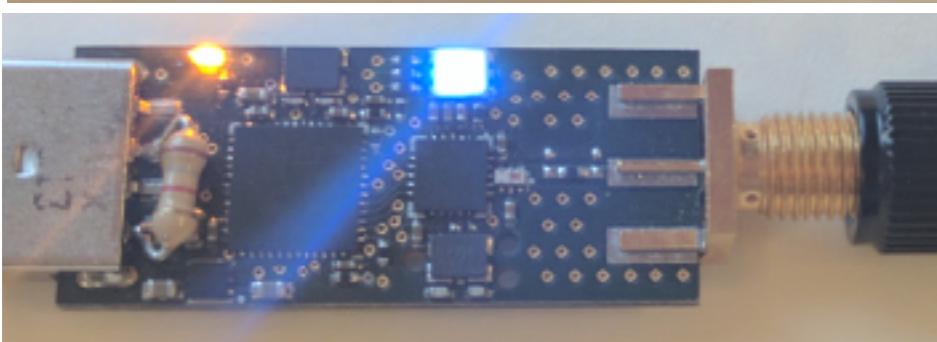
Color indicator



Green
Receiver initialized



Blue
Communicating with Zooids

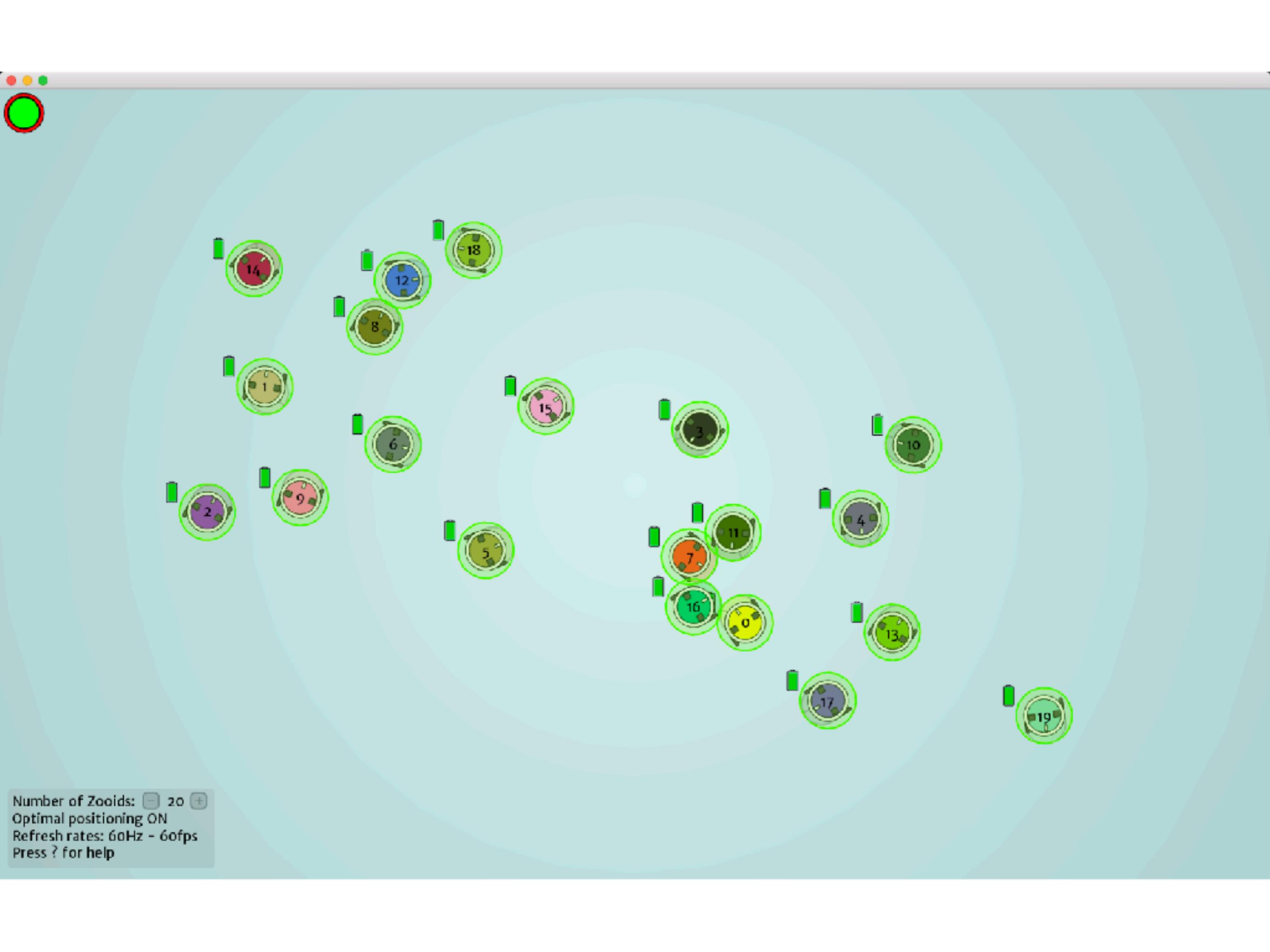


Yellow
Exchanging with ZooidManager

Run ZooidManager

- MacOS
 - ▶ Run **ZooidManager.app**
- Windows
 - Run **ZooidManager.exe**

ZooidManager can also be used without the physical platform, it then use an algorithm to simulate Zooids behavior.



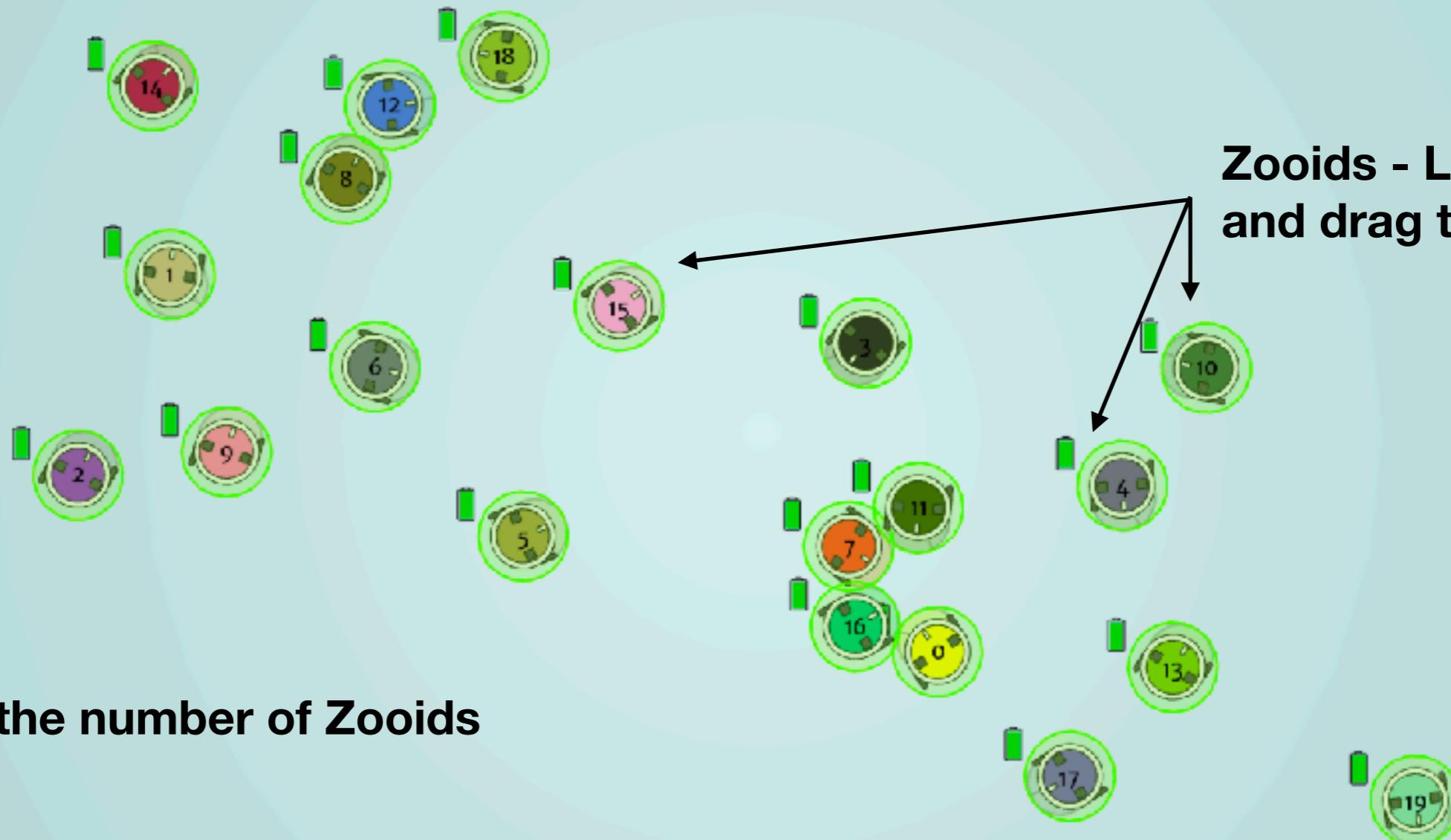
Number of Zoids:
Optimal positioning ON
Refresh rates: 60Hz - 60fps
Press ? for help



Path planning status: Green - Simulation running

Orange - No planning, just end position sent

Red - Control deactivated



Control the number of Zooids



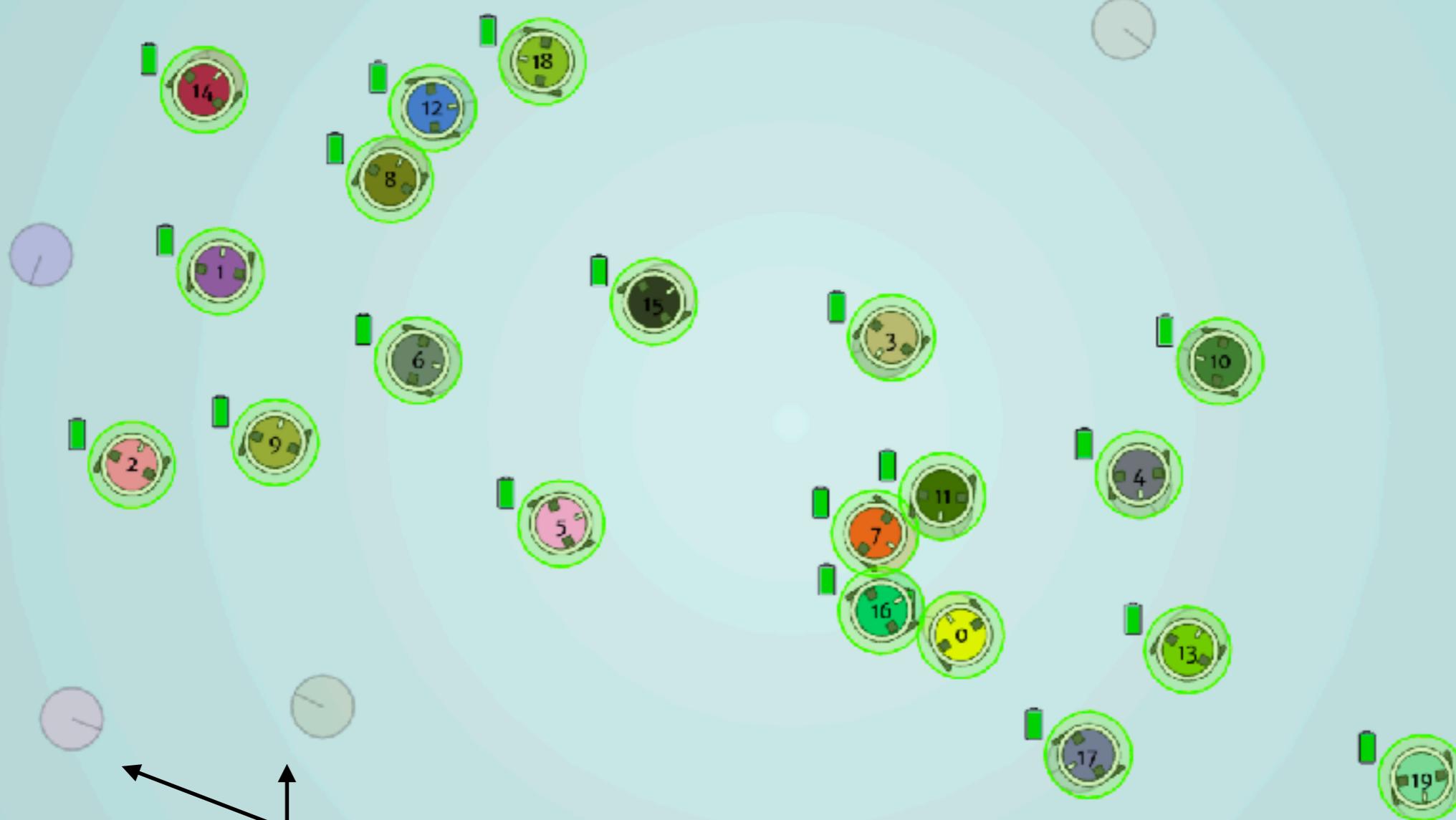
Number of Zooids: 20
Optimal positioning ON
Refresh rates: 60Hz - 60fps
Press ? for help

Help



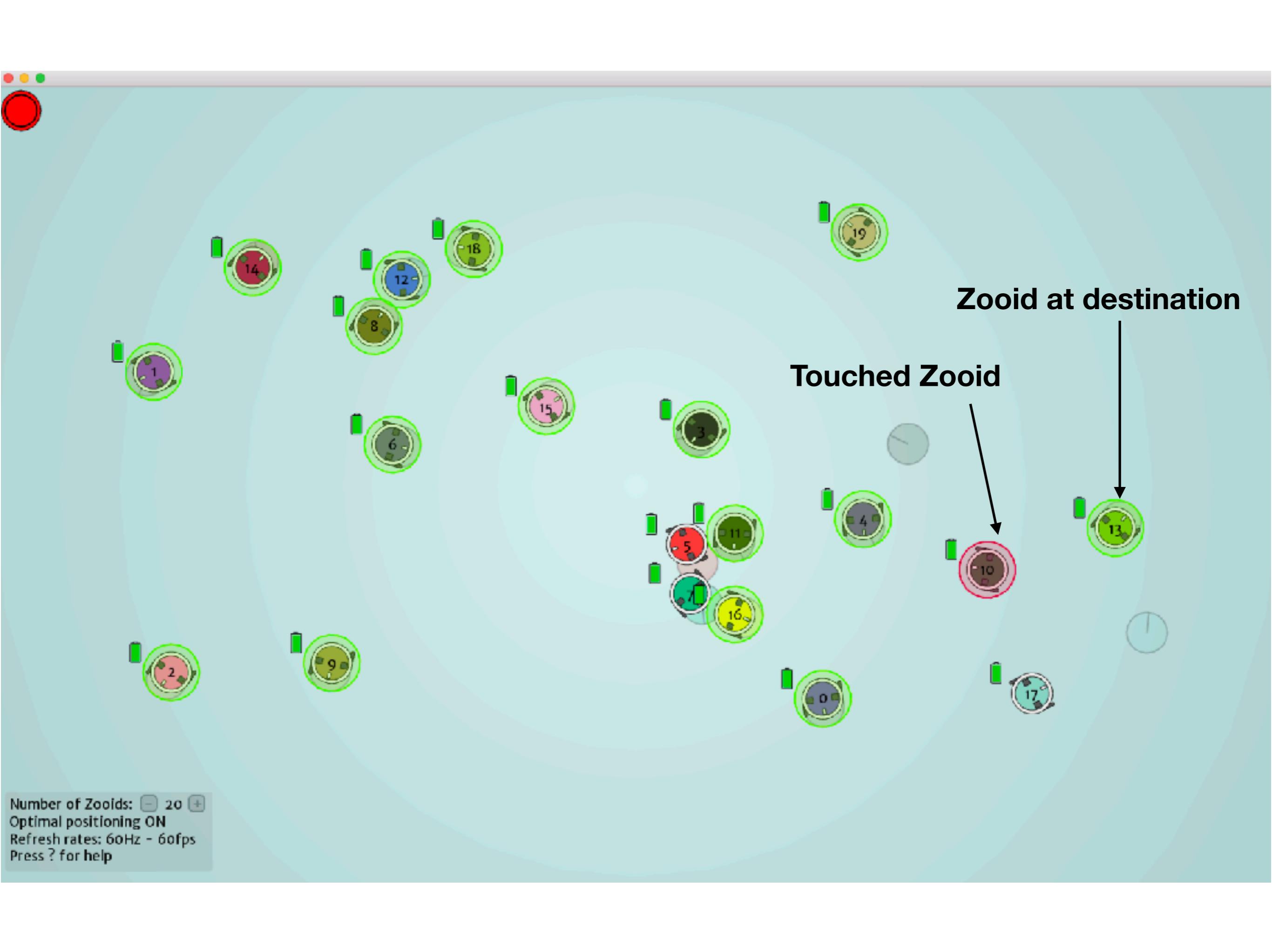
Receiver Status: Green - connected

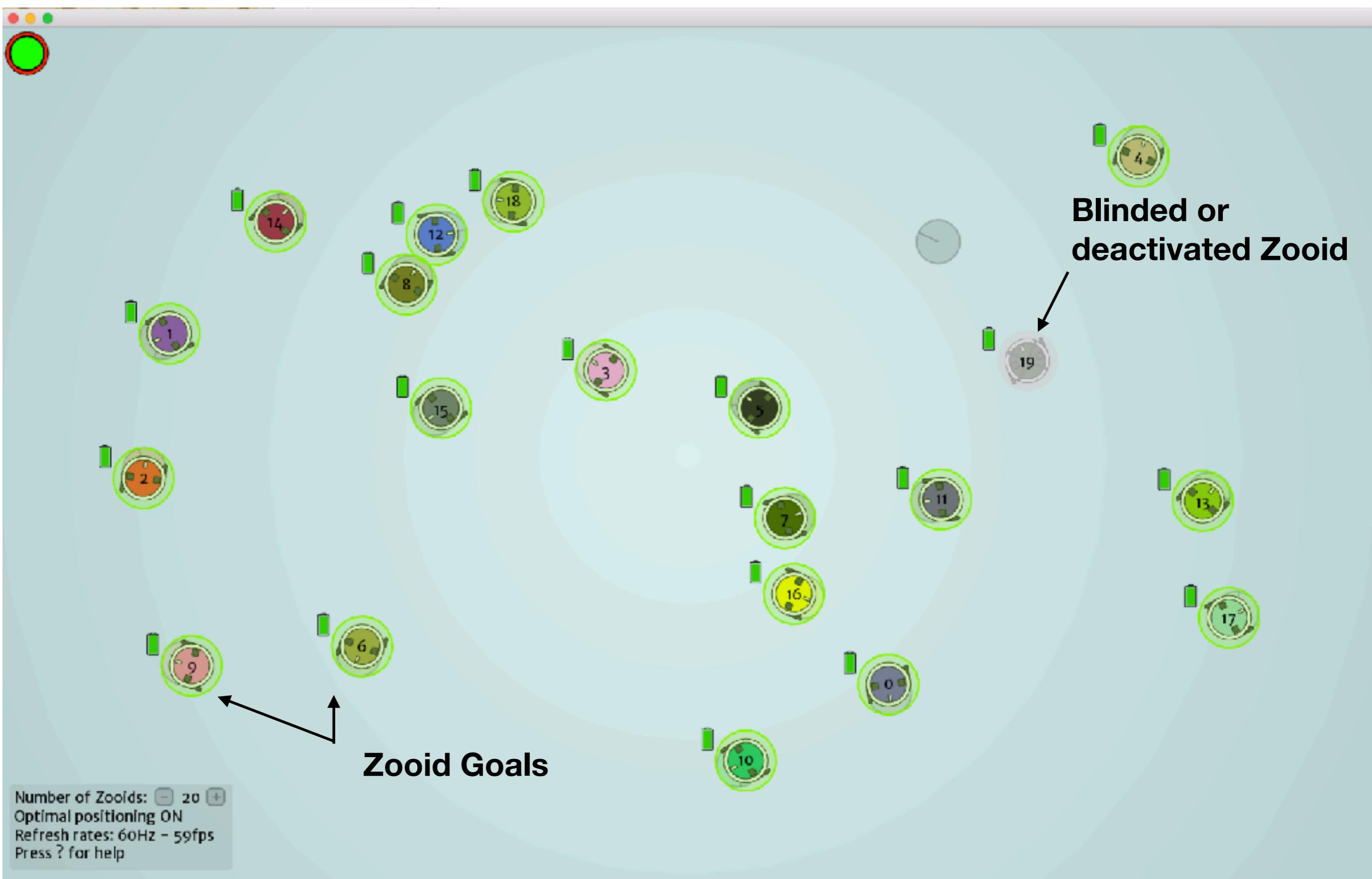
Red - receiver disconnect or not operational, the Simulation is automatically selected



**Zooid Goals - Right Click
And drag to move**

Number of Zoids:
Optimal positioning ON
Refresh rates: 60Hz - 60fps
Press ? for help





Using the API

- Add **ZooidManager.pde** in your Processing project folder
- In the API folder:
 - One Example demonstrating typical functions
 - Documentation detailing each function

Initialize the API

- Allocates the memory

```
ZooidManager zooidManager = new ZooidManager();
```

- Initialize network communication with ZooidManager and parameters for coordinates calculations

```
zooidManager.initialize(screenWidth, screenHeight);
```

Update information

Zoids information automatically updated with data coming from ZooidManager at 60Hz

Available information:

- Current position
- Current orientation
- Interaction state

Controlling Zoids

Controllable parameters:

- Destination
- Color
- Speed
- Orientation
- Reassignability
- Activation

Update ZoidManager

- Send all the modifications with

zoidManager.sendUpdates();