

Contemporary Data Processing Technology (CCOD)

Lab 1 (September 08, 2016)

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Control two metro cars using Speed, Distance, and Brake

In our practice work we made a model of 2 cars on plain loop with length of 1000 points. Every car at the beginning have the speed of 10 points and move in clockwise stream. At every iteration randomly the speed may change by -1, 0, +1. The movement breaks, when the distance between these cars equals 0.

On .gif animated picture you can see the result of running the code. Here are shown the loop with cars and some results: speed, distance between cars and coordinates of each car.

The program can be run in every browser.

Source code:

Sorce.js

```
function ConvUgToCorv(x, y, r, angle) {  
    return {  
        x: Math.round(x + r * Math.cos(angle)),  
        y: Math.round(y + r * Math.sin(angle))  
    }  
}  
  
function DrawTrain(ugol_1, ugol_2) {  
    var t_1 = ConvUgToCorv(250, 250, 200, ugol_1);  
    var t_2 = ConvUgToCorv(250, 250, 200, ugol_2);  
    var canvas = document.getElementById("myCanvas");  
    var ris = canvas.getContext("2d");  
    ris.clearRect(0, 0, 500, 500);  
    ris.beginPath();  
    ris.fillStyle = "#3498db";  
    ris.arc(250, 250, 200, 0, 2 * Math.PI);  
    ris.stroke();  
    ris.beginPath();  
    ris.fillStyle = "#34495e";  
    ris.arc(t_1.x, t_1.y, 25, 0, 2 * Math.PI);  
    ris.fill();  
}
```

```
    ris.beginPath();  
    ris.fillStyle = "#f39c12";  
    ris.arc(t_2.x, t_2.y, 25, 0, 2 * Math.PI);  
    ris.fill();  
}
```

```
var ugol_1 = 0;  
var ugol_2 = Math.PI;
```

```
setInterval(() => {  
    if (isStop) {  
        return;  
    }  
    ChangeValue();  
}, 50);
```

```
var poezd1 = {  
    speed: 10,  
    stop: 0,  
    distance: 500  
};
```

```
var poezd2 = {  
    speed: 10,  
    stop: 0,  
    distance: 500  
};
```

```
var isStop = false;
```

```
function ChangeValue() {  
    DrawTrain(ugol_1, ugol_2);  
  
    if (poezd1.distance <= 0 || poezd2.distance <= 0) {
```

```

        DrawTrain(ugol_1, ugol_1);
        isStop = true;
    }

    poezd1.speed += Math.floor(3 * Math.random()) - 1;
    if (poezd1.speed < 0) {
        poezd1.speed = 0;
    }
    poezd1.distance -= poezd1.speed;
    poezd2.distance += poezd1.speed;
    poezd2.speed += Math.floor(3 * Math.random()) - 1;
    if (poezd2.speed < 0) {
        poezd2.speed = 0;
    }
    poezd2.distance -= poezd2.speed;
    poezd1.distance += poezd2.speed;
    ugol_1 += poezd1.speed * Math.PI / 500;
    ugol_2 += poezd2.speed * Math.PI / 500;
}

```

Index.html

```

<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <title>Work</title>
</head>
<body>
    <canvas id="myCanvas" width="500" height="500" style="border:3px solid blue; background:
#27ae60">
    </canvas>
    <script src="./sorce.js"></script>
</body>
</html>

```