



The customer is a consulting company based in Belgium. They lead, execute and support solutions based on the Globis software platform.

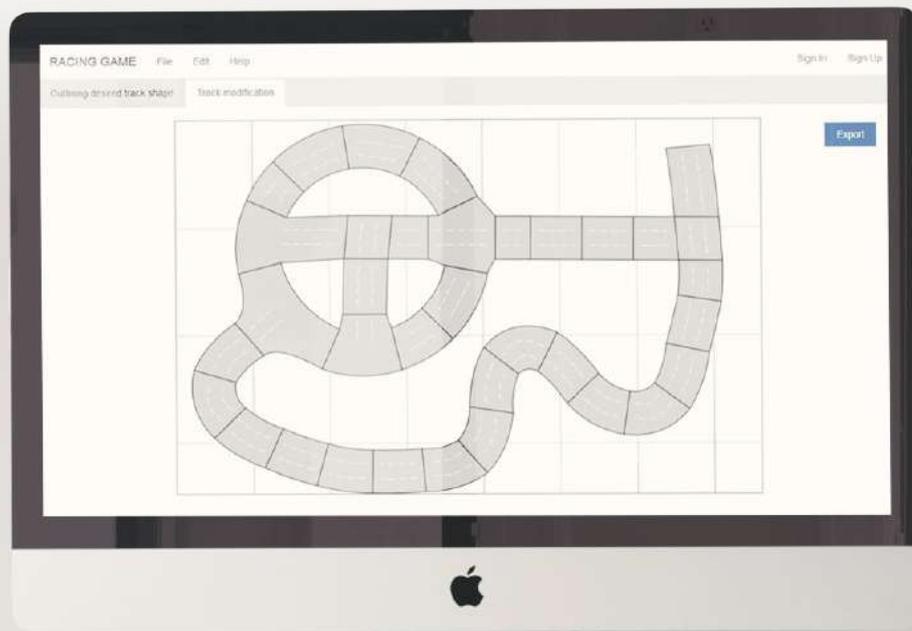
About the Project

Project **Racing Game** is a “print-on-demand” solution. The objective is to allow customers to create their own unique large size (1600 x 1030 mm) gameboard through:

- a fully flexible race track design.
- personalized decoration with images, drawings and text.

Users have the choice to :

- start from scratch and create their own fully unique design, or
- buy designs created by other users and posted on the reseller database, with the possibility to edit (translate) the text used on the gameboard.





Challenge

We were asked to create a web application that would allow the creation of unique gameboards.

The application was to have the following capabilities:

- ✓ **race track design** - the possibility to outline the desired shape, transform and modify it.
- ✓ **race track print file** - after design creation, the user must be able to save the gameboard in a print ready PDF file.
- ✓ **race track view file** - we were required to deliver the possibility of reducing the size of the print ready file and of zooming it in order to view it online.

Solution

We used a mathematical approach during the implementation of this project. These were mathematical solutions associated with vectors and the intersection of figures.

The math solutions we used:

Mathematical solutions associated with vectors	Mathematical solutions associated with the intersection of figures	Calculation of the shape of blocks	Using algorithms and equations
<ul style="list-style-type: none"> - vector multiplication - composition of vectors - decrease of vectors - rotation of vectors - angle calculation between vectors - vector length calculation - finding the point of intersection between vectors 	<ul style="list-style-type: none"> - extension of blocks in the case of angled and T-shaped intersections - moving blocks circumferentially to approach the intersection (compression / expansion of the nearest blocks) - moving a block along a line to approach an intersection (when the intersection was with a circle) (compression / expansion of the nearest blocks) - widening the intersection region in the case of crossing with an acute angle 	<ul style="list-style-type: none"> - calculation of average points for rounding circle blocks - calculation of average block points for smoothing misaligned blocks - calculation of the initial and final block line - combination of small blocks - finding the resulting block at the intersection of 2 figures 	<ul style="list-style-type: none"> - approximation line - Bézier curve - approximation line - spline - equation line, circle, quadratic - determining point in circle - determining point on line - determining point in defined area - checking point relative to the line - autoconnecting 2 nearest lines



Key Features



Save your design in a print ready PDF file.



Create your own gameboard design from scratch or buy other users' designs.



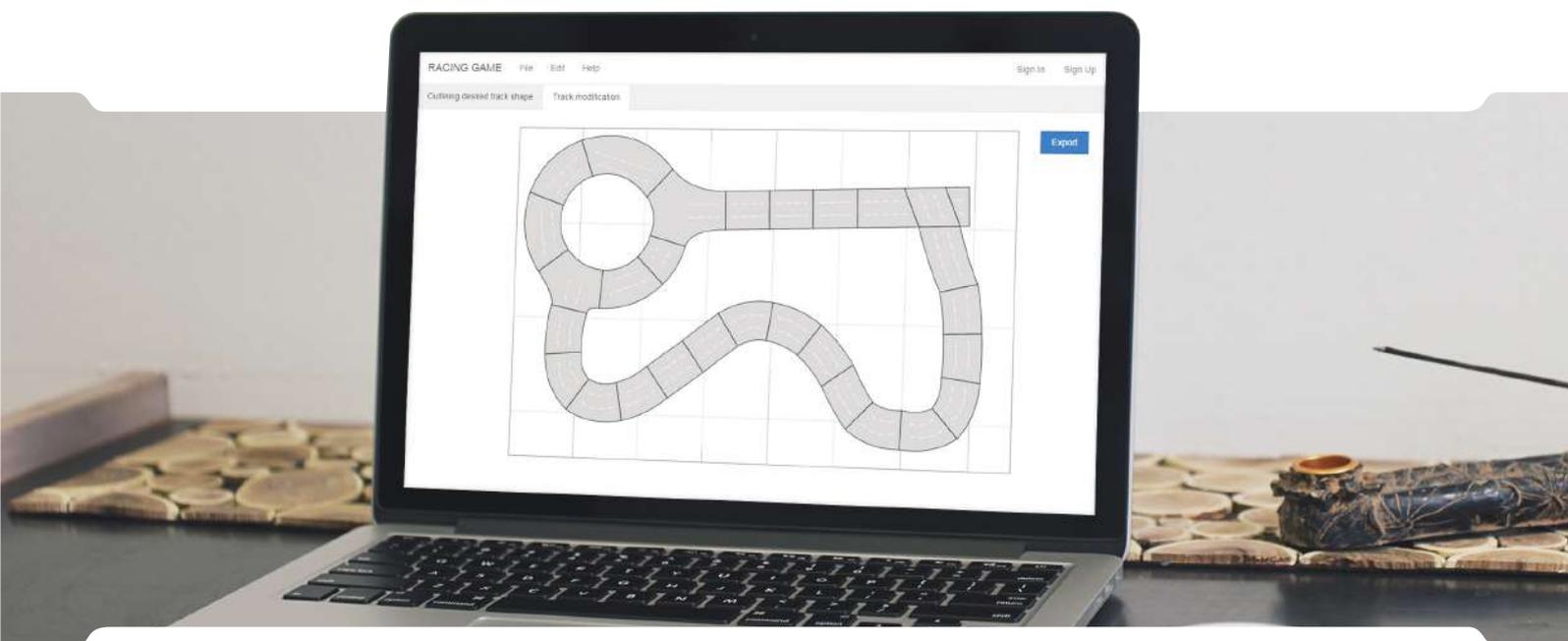
Decorate your race track with images, drawings and text.



Reduce the size of the print ready file or zoom it to view online.



Modify race track components.



Technologies Used



AngularJS 1.0



MongoDB



Node.js



Fabric.js



Bootstrap 4

express

Express.js



MEAN Stack