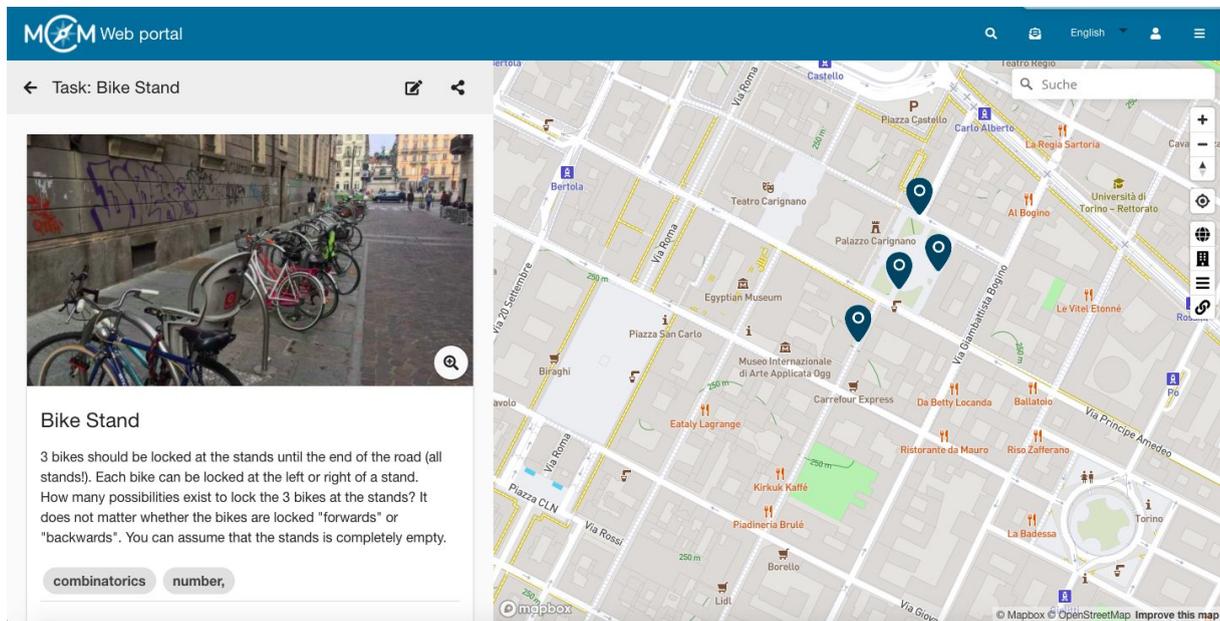


## Output 3: Authoring Website



### Objective

The main objective of MoMaTrE Output O3 was the design and development of the authoring website, that is, the web portal that supports the process of creation, insertion and publication of tasks and trails by the community. This output is tightly integrated with both outputs O4 (Community Website), O2 (Mobile Application to create tasks for MathCityMap), and even O1 (MCM App), due to the need to develop a common base framework to serve all needs.

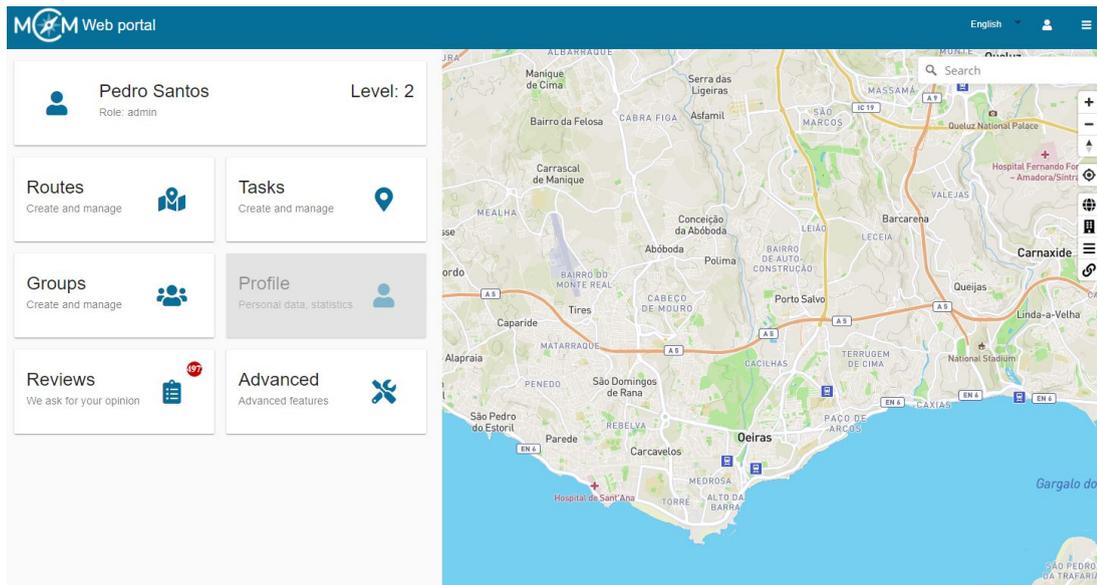
### Challenges

Two of the main challenges of this project were how to produce good quality content in quantity and how to boost teacher involvement. Both of these challenges are covered by the Authoring Website which is seamlessly integrated with the community portal and the trail management website.

## Using the Authoring Website

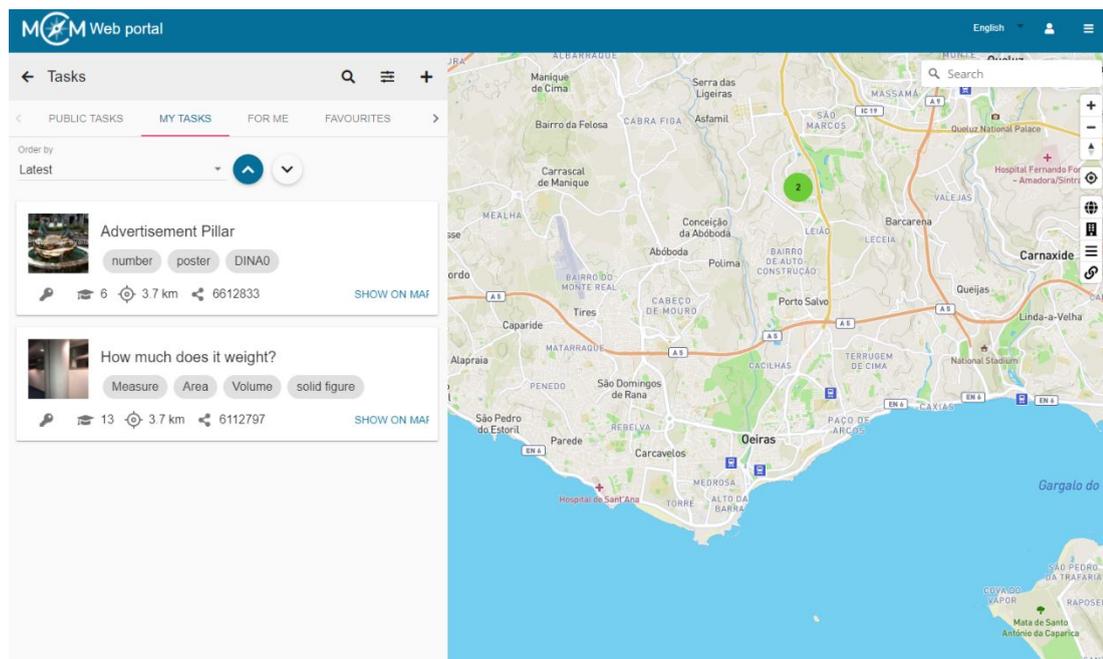
In this document, you will find a short summary on how to use the MCM web portal. Detailed video tutorials are available on [Youtube](#).

To use the Authoring Website, one starts by accessing the MCM Portal. There are buttons for the Tasks and Routes (Trails).

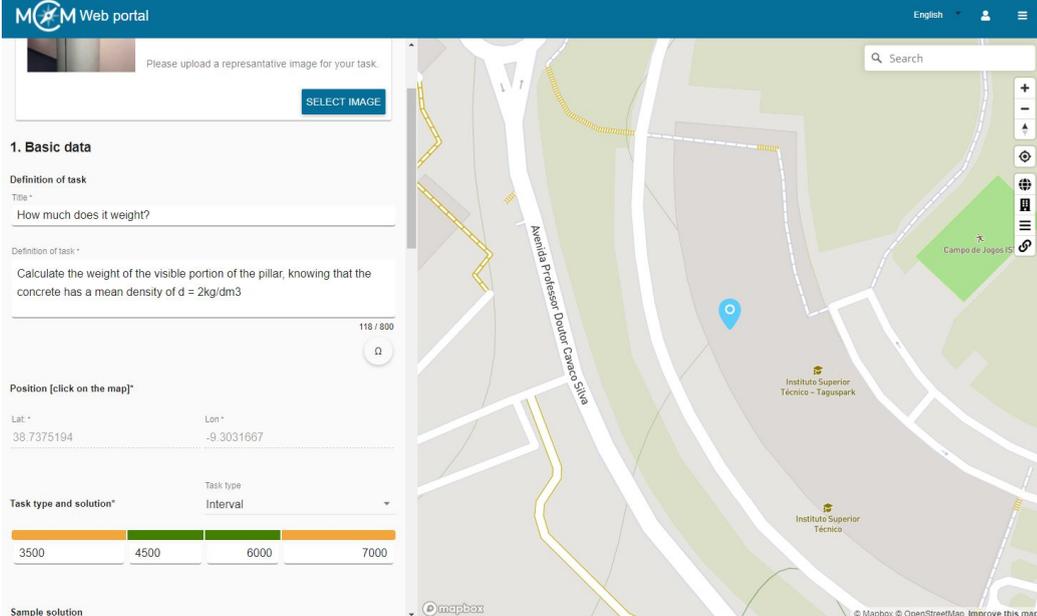


## Creating a task in 3 easy steps

**Step 1:** By clicking on the “Tasks” button one accesses both the public tasks in the area, as well as the tasks already created by the user. To create a new task, just click on the “+” sign.



**Step 2a:** Fill the different fields in the task form (e.g. name, question text, solution, hints, metadata, labels, etc).



**MCM Web portal** English

Please upload a representative image for your task.  
**SELECT IMAGE**

**1. Basic data**

**Definition of task**

Title \*  
How much does it weight?

Definition of task \*  
Calculate the weight of the visible portion of the pillar, knowing that the concrete has a mean density of  $d = 2\text{kg/dm}^3$

118 / 800

Position [click on the map]\*

Lat \*  
38.7375194

Lon \*  
-9.3031667

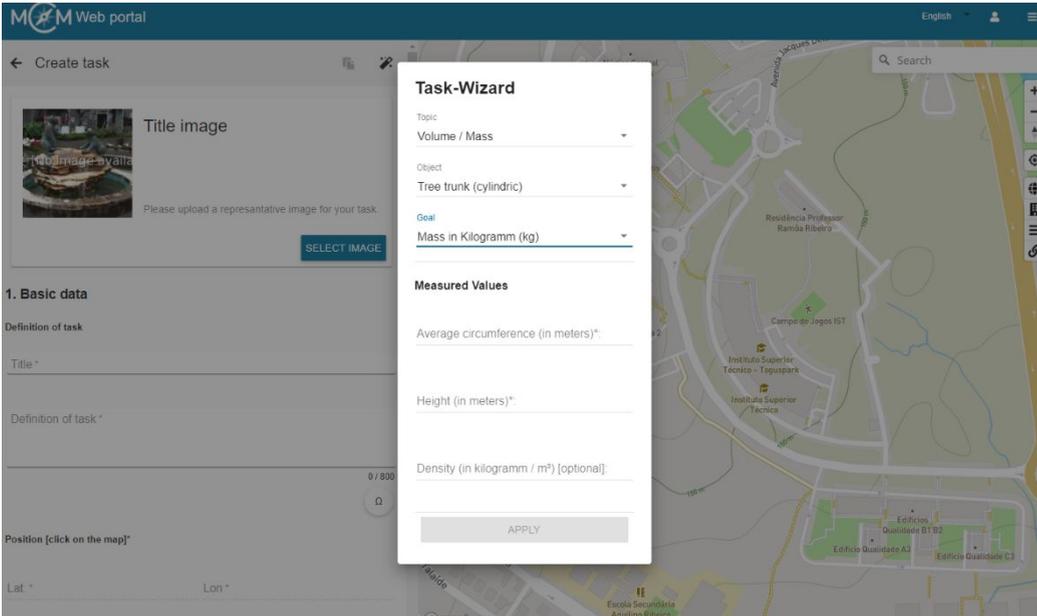
**Task type and solution\***

Task type  
Interval

3500 4500 6000 7000

Sample solution

**Step 2b:** Instead, the user may choose to use one of 24 fully developed task templates by using the so-called task wizard. In this case, one must only fill in the measured values of the object. In the displayed image, the task wizard will produce the following mathematical task: *“Determine the weight of the tree trunk in kg.  $1\text{cm}^3$  wood weighs  $800\text{g}$ ”*



**MCM Web portal** English

← Create task

Title image  
Please upload a representative image for your task.  
**SELECT IMAGE**

**1. Basic data**

**Definition of task**

Title \*

Definition of task \*

0 / 800

Position [click on the map]\*

Lat \*

Lon \*

**Task-Wizard**

Topic  
Volume / Mass

Object  
Tree trunk (cylindric)

Goal  
Mass in Kilogramm (kg)

**Measured Values**

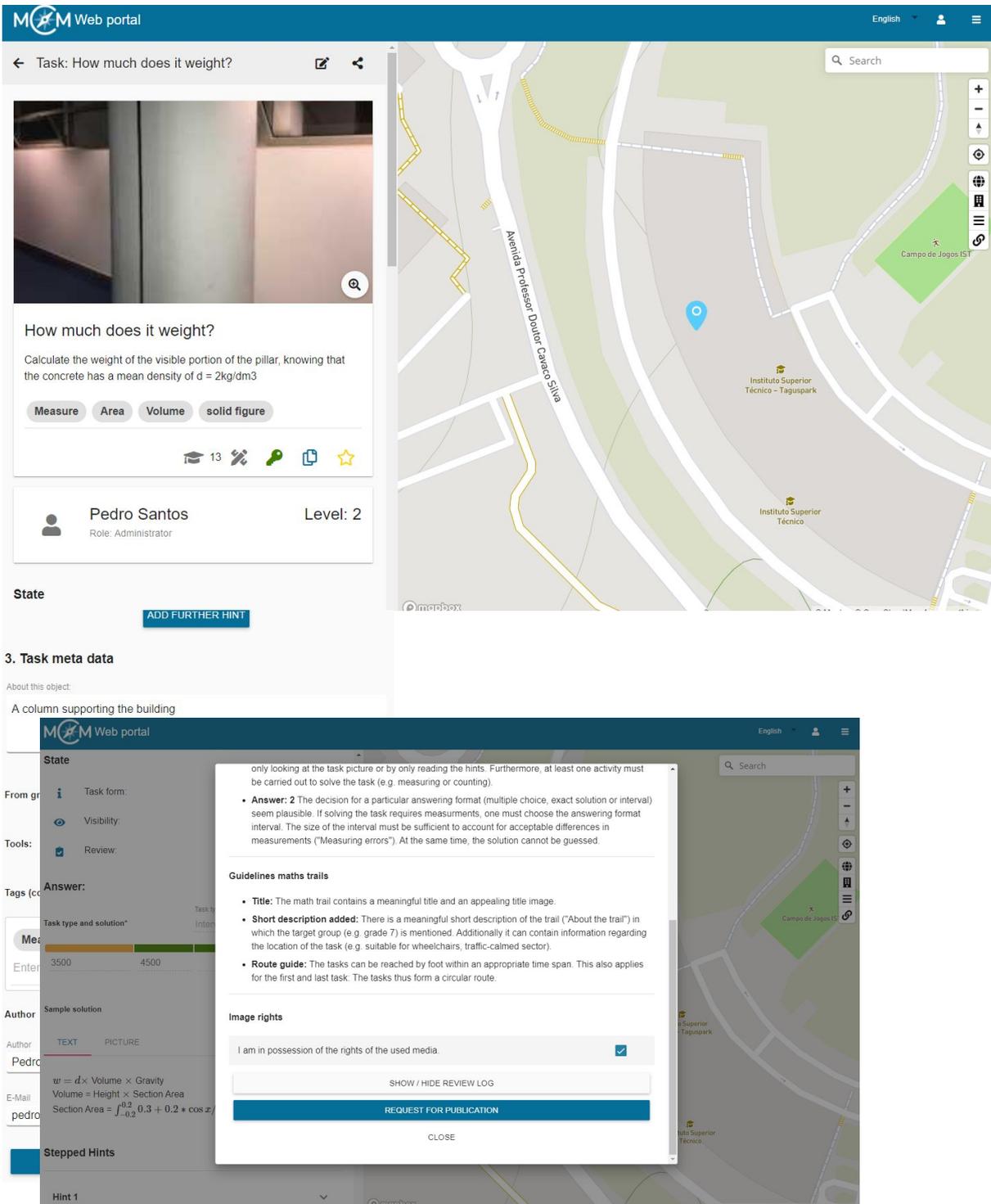
Average circumference (in meters)\*

Height (in meters)\*

Density (in kilogramm /  $\text{m}^3$ ) [optional]

APPLY

Step 3: When the task is ready, it is possible to save it and send it for publication.



**MOMaTrE Web portal** English

Task: How much does it weight?

How much does it weight?  
Calculate the weight of the visible portion of the pillar, knowing that the concrete has a mean density of  $d = 2\text{kg/dm}^3$

Measure Area Volume solid figure

Pedro Santos  
Role: Administrator Level: 2

State  
ADD FURTHER HINT

3. Task meta data  
About this object:  
A column supporting the building

State  
Task form:  
Visibility:  
Tools:  
Review:  
Answer:  
Task type and solution\*  
Meas  
3500 4500  
Enter  
Author  
Sample solution  
Author: Pedro  
E-Mail: pedro  
Stepped Hints  
Hint 1

only looking at the task picture or by only reading the hints. Furthermore, at least one activity must be carried out to solve the task (e.g. measuring or counting).

- Answer: 2** The decision for a particular answering format (multiple choice, exact solution or interval) seem plausible. If solving the task requires measurements, one must choose the answering format interval. The size of the interval must be sufficient to account for acceptable differences in measurements ("Measuring errors"). At the same time, the solution cannot be guessed.

**Guidelines maths trails**

- Title:** The math trail contains a meaningful title and an appealing title image.
- Short description added:** There is a meaningful short description of the trail ("About the trail") in which the target group (e.g. grade 7) is mentioned. Additionally it can contain information regarding the location of the task (e.g. suitable for wheelchairs, traffic-calmed sector).
- Route guide:** The tasks can be reached by foot within an appropriate time span. This also applies for the first and last task. The tasks thus form a circular route.

**Image rights**  
I am in possession of the rights of the used media.

SHOW / HIDE REVIEW LOG

REQUEST FOR PUBLICATION

CLOSE



## The review process

An expert review section has been created in which the to be published tasks are connected to one reviewer who receives an email and has in the website a list presenting the pending issues.

A reviewer can click on the “Review” button to access tasks for review. The reviewer can approve the task, or s/he can reject it. Any way, some feedback can be added for the author to improve the task. The results of the review are also sent by email to the author.



### Cobbled stones

Of how many cobble stones does the marked area consist?

measurement volume



#### Waiting for review

The author of this content has requested publication. Please review the content and provide a feedback for the user.

[HIDE REVIEW FORM](#)

#### Your decision

- Publish content (accept)
- Content must be revised (decline)

#### Your feedback

Message \*

Dear Zoe & Anna,

thanks for creating this task. However, I have some comments and kindly ask you to revise your task with regard to the following points.

- Image:**  
Please upload another picture which is more sharpen. In addition, choose a picture that clearly illustrates the tasks situation.
- Keywords:**  
The tag “volume” should be replaced by the keyword “area”. In my opinion “counting” would be a suitable tag for your task, too.
- Tools:**  
In my view, a wire isn’t an appropriate tool in this case. In the 2<sup>nd</sup> hint you suggest that the students should use the folding ruler to count the stones on one square meter. That seems to be a good hint – so please replace the “wire” by the tool “folding ruler”
- Sample solution:**  
To comprehend your approach, it is necessary to know your measured data. How did you calculate the area of 56m<sup>2</sup>? Please present your way of solution more detailed.
- Interval**  
Your interval too narrow. If the students calculate an area of 54 m<sup>2</sup>, their solution wouldn’t fit into your interval – even if their approach was similar to your sample solution.
- About this object:**  
Lastly, I ask you to remove your personal statement under “About this object”.

With all these remarks I do not want to discourage you, but rather help you to improve your task.

Best regards,  
Simon Barlovits



### Standing stone

Calculate the weight of the standing stone in tons, if 1m<sup>3</sup> of stone weighs 2600kg.

Geometry Measure Volume



#### Waiting for review

The author of this content has requested publication. Please review the content and provide a feedback for the user.

[HIDE REVIEW FORM](#)

#### Your decision

- Publish content (accept)
- Content must be revised (decline)

#### Your feedback

Message \*

Dear Manuel,

thanks a lot for creating this interesting task.

Best regards from Frankfurt  
Simon Barlovits



## Gamification

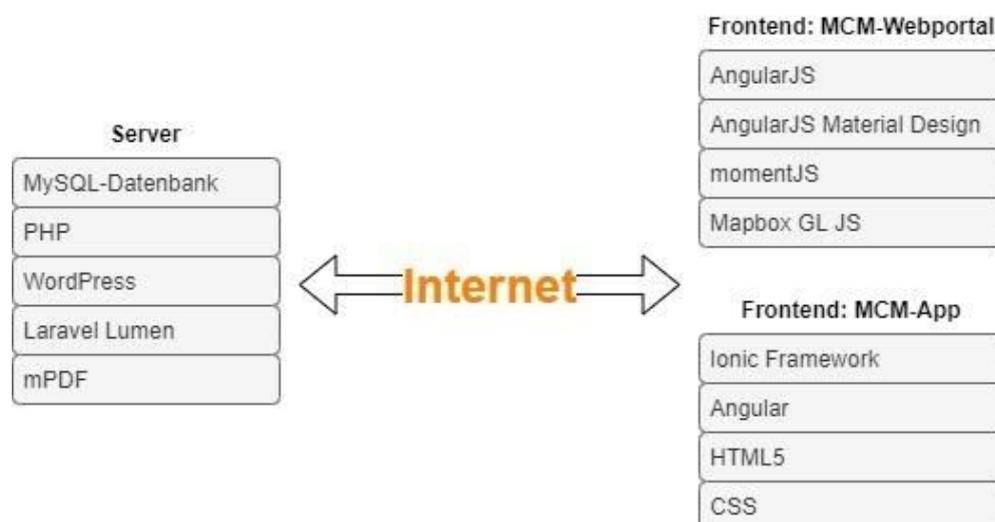
Per trail, authors may easily enable different gamification modes inside the MCM web portal. Depending on the selected mode, users running a math trail with the MCM app will experience a different look and feel. The following table sums up all available modes.

Mode	Description
Points	Users are rewarded with up to 100 points for solving a task. Wrong answers will result in a 10 point penalty.
(Local) Leaderboard	Based on the points gamification, players get into a competition by seeing also the amount of points, which other learning groups earned.
Pirates Narrative	This theme involves a completely new graphical skin for the mobile app, and automatic text substitution in several parts of the application, to adjust the language to the theme. Wizard tasks are completely adjusted to a "Pirate Slang" as the following example demonstrates:  <i>"Arr! We found treasure! This here be a big valuable stone, we need to put it inside our ship. But how much does it weight? <math>1m^3</math> weighs 2600 kg. Tell me th' result in kg, me Captain"</i>

## Technological Details

### Technology Stack

The following image shows which frameworks the authoring website uses and how it is integrated into the overall project.



## Navigation structure of the authoring website

The authoring Website, or portal, is organized as follows:

