Porting activities in GCompris in Qt-Quick

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1. Motivation

GCompris is about teaching the basics in the most easiest way to children between the age of 2 to 10. The gtk+ version of GCompris was very well recieved, and from there it was decided to Qt version, to make GCompris available for all kinds of devices, like tablets. The latest version of GCompris is 0.70 and as of now it has 137 categories on various topics like science, maths, games and much more, fully supporting 15 languages.

My goal for the project is to port two experimental activities from the Gtk+ version of GCompris to the Qt version.

The best way to teach any concept is by demonstration. But it is not always possible to demonstrate everything that needs to be taught, such as the working of submarine and it's different parts. That's were simulation of real world problems come to play. The aim of this project is to simulate real world situations in two activities, *"Pilot a Submarine"* and *"Sea race (Single Player)"*

2. Project Goals

By the end of the Google Summer of Code's time period, I will be completing the following activities :

- **Pilot a Submarine**: It is a port to the Qt version of a strategic activity originally present in the Gtk+ version aimed to teach how a submarine works. It was started in this branch:

https://cgit.kde.org/gcompris.git/log/?h=gsoc-submarine

- **Sea Race (2 players)**: It is an experimental activity from the Gtk+ version, which will be ported to the Qt version of GCompris. This activity is aimed at learning how to enter commands into a computer, providing an introduction to the concepts of programming to children. It was originally present in the Gtk+ version:

  https://github.com/gcompris/GCompris-gtk/tree/master/src/searace-activity

- **The Solar System**: This activity aims at providing a basic understanding about our Solar System, it's planets and facts and properties of each of the planets.

3. Implementation Details

3.1. Pilot a Submarine

The *"Pilot a Submarine"* is to learn how a submarine works, explaining the usage of elements such as engine, rudders and air tanks, in order to navigate a submarine to a required depth.

- Since this activity was already present in the Gtk+ version, I will be using the svg and the audio files from the resources used in the Gtk+ submarines activity. This will allow me to dive into the coding part directly.

- There will be a tutorial at the start of the activity, which will give a brief description about the different elements (engine, rudders and air tanks) and it's functions.

- Firstly I will be implementing the submarine and the mechanics of it's elements, namely the engine, rudders and the air tanks. Once that is in place, I will then shift on to create various levels and it's variations.

- The activity will contain pickups in the form of jewels, as it was present in the Gtk+ version

- Besides the regular pickups in the Gtk+ version, there will be additional threats in the form of rocks and caves, in order to maintain an increasing difficulty curve, while still keeping it doable for children within the prescribed age limit.

- In order to enhance the experience, the overall activity and the movement of the submarine and the animations will be smoother compared to the Gtk+ activity.

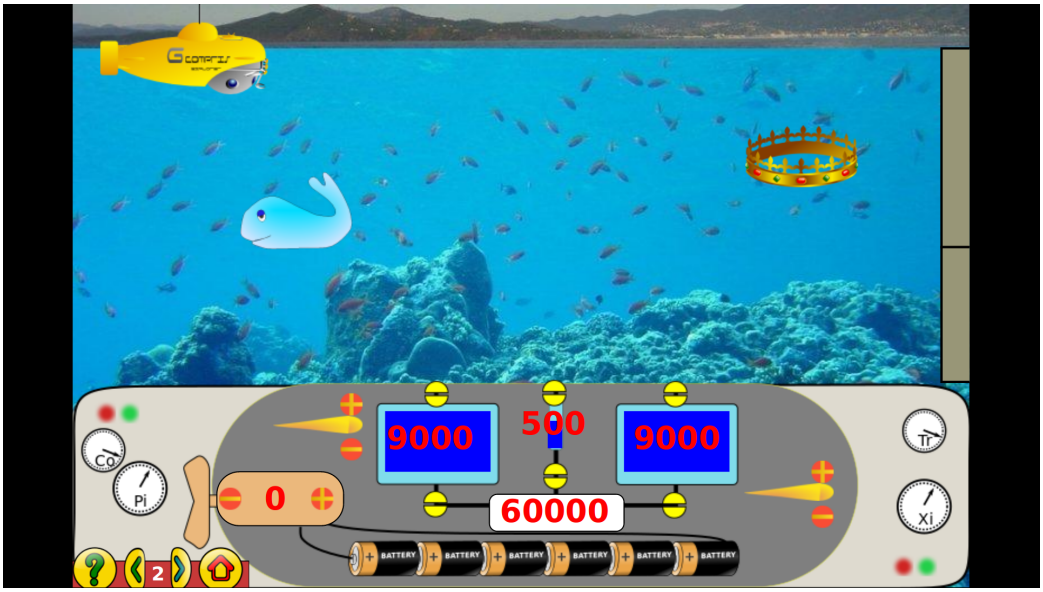

Figure 1: Submarine Activity

3.2. Sea Race (Single Player)

3.3. Third undecided one

/*2d matrix, Tux, door and few pickups. command tux to take all pickups and move out of the door. Commands - rotate (+-90, +180), move forward (x blocks)*/

/*Physics*/

/*Complete incomplete activities*/

4. Timeline

5. About Me

1. Numbered list item one
2. Numbered list item two

5.1. Subsection One

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Treatments	**Response 1**	**Response 2**
Treatment 1	0.0003262	0.562
Treatment 2	0.0015681	0.910
Treatment 3	0.0009271	0.296

Table 1: Table caption

5.2. Subsection Two

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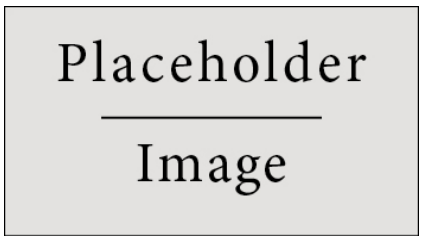

Figure 2: Figure caption

$$e = mc^2 \tag{1}$$

6. The Second Section

Reference to Section 5. Etiam congue sollicitudin diam non porttitor. Etiam turpis nulla, auctor a pretium non, luctus quis ipsum. Fusce pretium gravida libero non accumsan. Donec eget augue ut nulla placerat hendrerit ac ut mi. Phasellus euismod ornare mollis. Proin tempus fringilla ultricies. Donec pretium feugiat libero quis convallis. Nam interdum ante sed magna congue eu semper tellus sagittis. Curabitur eu augue elit.

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