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Interactive Racing Car (Version 2) Manual

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1. Installation

Step 1: JRE 7 Installation

Install the Java SE Runtime Environment (JRE) 7 or later version. You can find this software in the CD that is included: look inside the folder **java-jre7** and double click on the file **jre-7u2-windows-i586.exe**.

If you prefer, you can download the latest version from the website as well:

<http://java.sun.com/javase/downloads/index.jsp>

It is very important that you look at the licence agreement for this software. A copy of the license is in the file **JavaSE_JavaFX_License.rtf** inside the folder **java-jre7**.

A more detailed sequence of steps follows:

- a) Double click on the file **jre-7u2-windows-i586.exe**
- b) The Windows Installer screen will appear:



Figure 1: Windows Installer

- c) The Java Setup will show the welcome screen:



Figure 2: Java Setup Welcome

- d) Look at the license agreement and then click "**Install**".
- e) The installation will start. This part can take a few minutes (Figure 3).



Figure 3: Java Setup Progress

f) When the installation is successful you will see this screen:



Figure 4: Java Setup Complete

NOTE: The software included here is for machines that run Windows operating system. If you want to install this software in a machine that runs other operating system then it is recommended that you download the corresponding software from the website above.

Step 2: Installing the “Interactive Racing Car (Version 2)” Software

The installation of this software is quite straightforward. You only have to copy the **InteractiveRacingCar2** folder in your **Desktop**.

The screen sizes supported by the software are: 1024x768, 1152x864, 1280x1024, 1600x900, 1600x1200, 1680x1050 and 1920x1200

In the next section, you will find information about how to start the “Interactive Racing Car (Version 2)” software and how to use it.

2. Using the software

2.A. Starting the Software

Double click on the **InteractiveRacingCar2** folder that is on your **Desktop**. You will see the content of that folder:

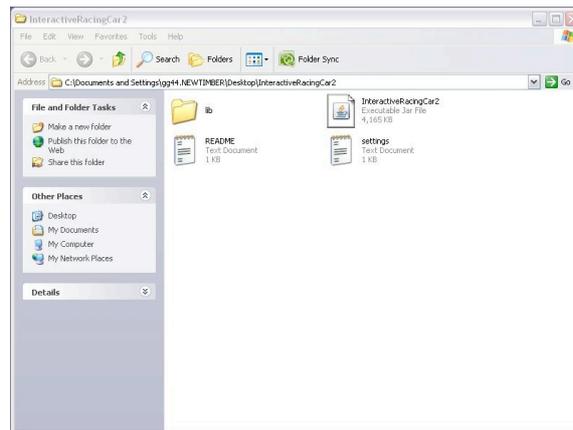


Figure 5: InteractiveRacingCar2 folder

Now, double click on the **InteractiveRacingCar2.jar** file. You will see the following screen:



Figure 6: Interactive Racing Car Software2 - Main Screen

2.B. Exiting the Software

The **“Exit”** button closes the software and the **“About”** button gives information about the software (Figure 6).

2.C. Selecting your Tracks

The “Interactive Racing Car (Version 2)” software allows you to “race” in different types of tracks. If you press the “**Settings**” button (Figure 6), the Settings screen will appear (Figure 7) and you will be able to select the tracks that you want to see for your “races”.

If it is the first time you use the software then you will see that the list contains three different tracks (Figure 7).



Figure 7: Settings screen from the Interactive Racing Car Software

Adding a Track

The “**ADD Track**” button (Figure 7) will allow you to add more tracks on the list. When you press it, you will see the following screen:



Figure 8: Adding a track

You have to select from the drop-down menu the track that you would like to add to the list. Press “**OK**” to add the track that you selected. If you do not want to add a track then press “**Cancel**”.

Remove a Track

The **“REMOVE Track”** button (Figure 7) removes one of the items of the list. You need to select an item from the list first (see Figure 9) in order to remove it; otherwise, the message “You need to select a track from the list” will appear.

If you accidentally delete one track you want to use, you will need to add it again by using the **“ADD Track”** button (Figure 7).

Changing the Order of the Tracks

When you select a track from the list, the buttons **“Up”** and **“Down”** will be enabled (Figure 9). The buttons will allow you to move the selected item to the top (“Up” button) or to the bottom (“Down” button) of the list. These changes will be reflected when you start your races. The track on the top of the list will appear first.



Figure 9: Selecting a track from the list

Cancel Your Changes

The **“CANCEL”** button (Figure 9) will close the screen and all the changes that you did will **not** be applied.

Save Your Changes

The **“DONE”** button (Figure 9) will close the window and will save the changes that you did to the list. All the changes that you did will remain even if you exit the “Interactive Racing Car (Version 2)” software.

NOTE: If you leave the list empty then when you start the racing car (Section 2.D and Section 2.E) then you will see only the “Information Screens” (Figure 10, Figure 13) and **not** the “Track/Graph Screens” (Figure 11, Figure 14).

2.D. Moving the Car along the Track Activity

The “**Race a Car!**” button (Figure 6) will start the races listed in the “Settings” screen (see Section 2.B). When you press this button, a sequence of “Information Screens” will appear. Read the instructions and press the “**Next**” button to each of the “Information Screens” (Figure 10).

In the last information screen, you will find the “**I am ready to START**” button. Press it for starting the Racing Car!

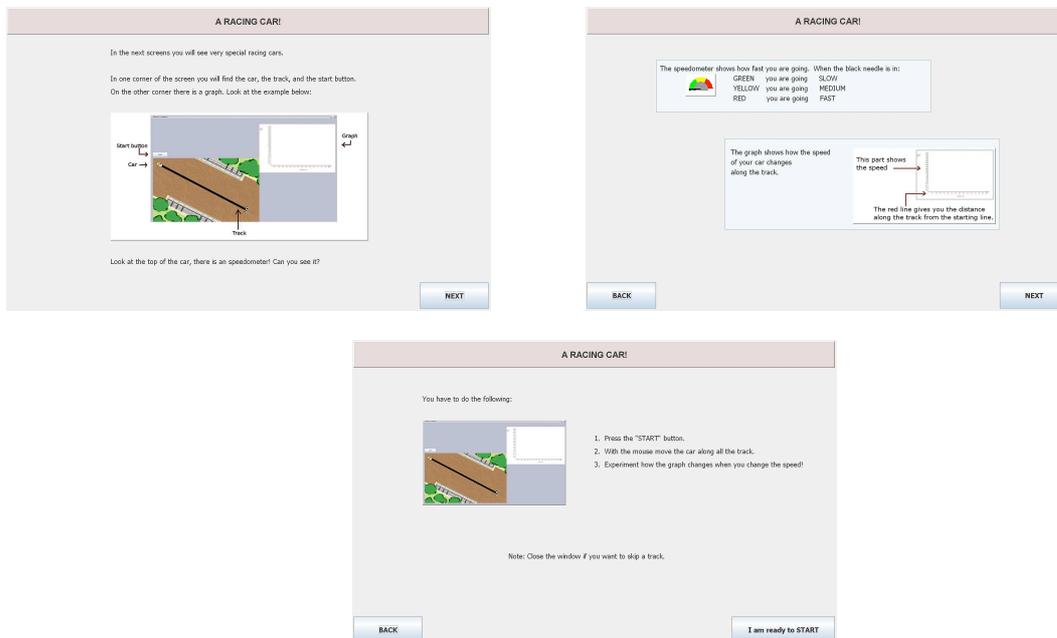


Figure 10: Information Screens 1, 2 (top left and top right) and 3 (bottom) - Race a Car!

Starting the Activity

Once you have pressed “**I am ready to START**” button (Figure 10), a new screen will appear. It contains a Track and a Graph (Figure 11).

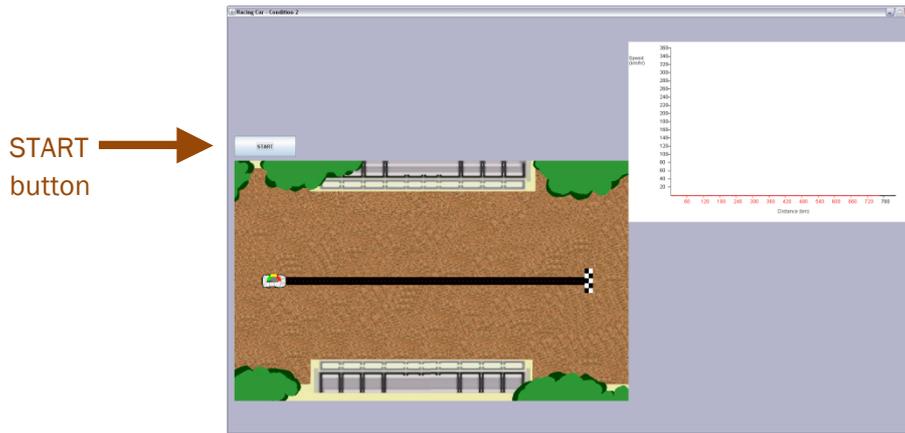


Figure 11: The Track and the Graph for the Racing Car

There are two important points to remember in order to race the car successfully:

1. Press the START button **before** you start moving the car along the track.
2. Remember to keep the mouse (or finger if you are using a touch screen) **on the top of the car** in order to move it.

When you have finished racing the car along the track, you will see the following window:

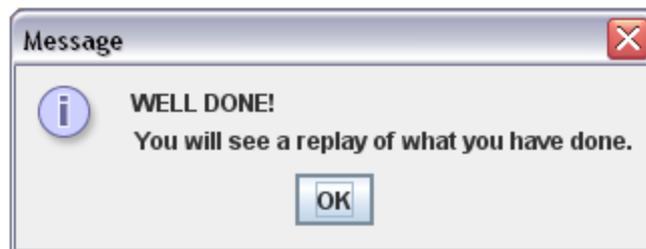


Figure 12: Information window

Press the “OK” button to see the replay of what you have done.

When you have finished all the races then you will see the main screen again (Figure 6).

2.E. Changing the Graph Activity

The “**Change a Graph!**” button (Figure 6) will start the races listed in the “Settings” screen (see Section 2.B). When you press this button, a sequence of “Information Screens” will appear. Read the instructions and press the “**Next**” button to each of the “Information Screens” (Figure 13).

In the last information screen, you will find the **“I am ready to START”** button. Press it for starting.

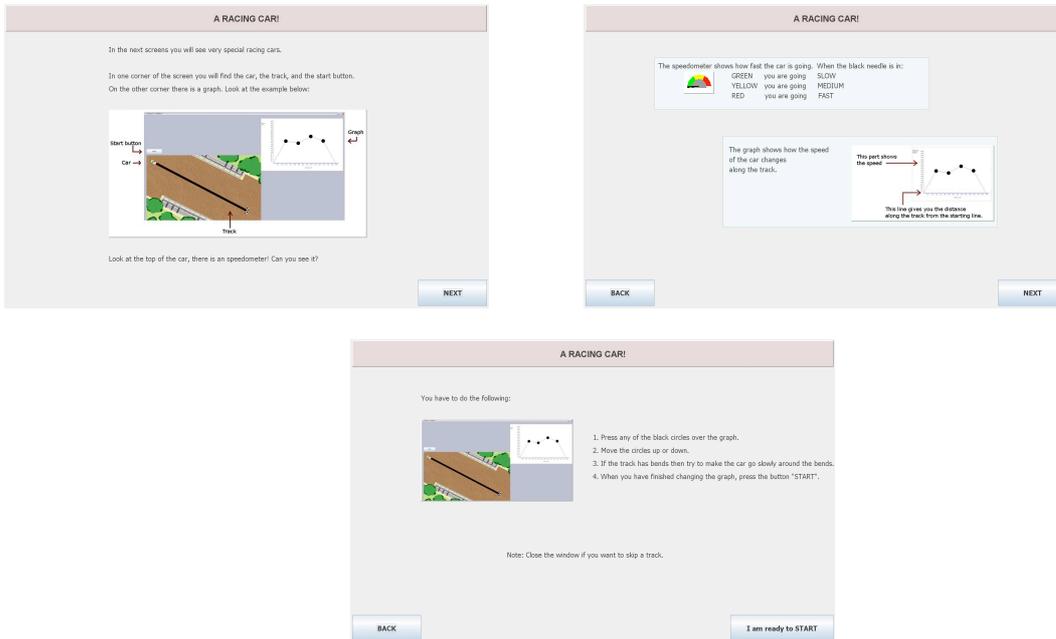


Figure 13: Information Screens 1, 2 (top left and top right) and 3 (bottom) – Change a Graph!

Starting the Activity

Once you have pressed **“I am ready to Start”** button (Figure 13), a new screen will appear. It contains a Track and a Graph (Figure 14).

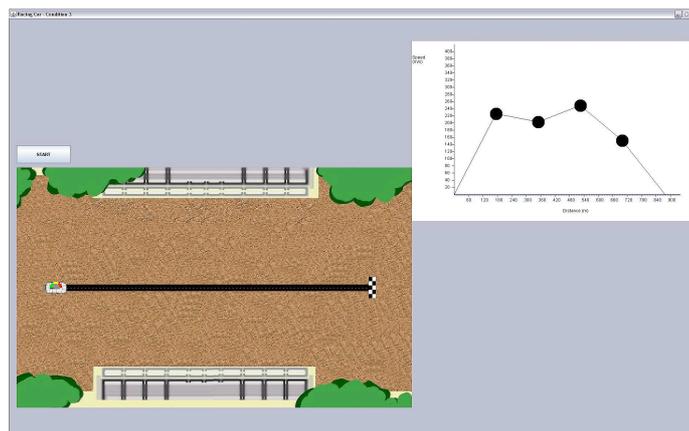


Figure 14: The Track and the Graph for Changing a Graph

There are a few points you need to remember to race the car successfully:

1. Move the dark circles over the graph **upwards or downwards only** – it is not possible to move them to the sides.

2. Press the START button **after** you have changed the graph.
3. Remember to keep the mouse (or finger if you are using a touch screen) **on the top of the black circles.**

When you have finished your races, you will see the following window:

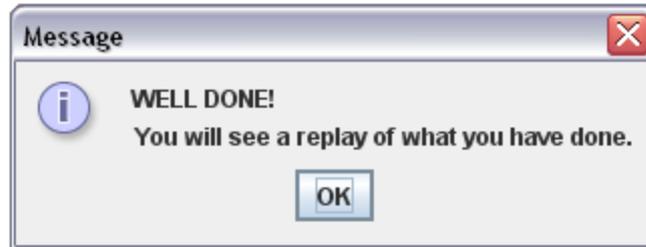


Figure 15: Information window

Press the “OK” button to see the replay of what you have done.

When you have finished all the races then you will see the main screen again (Figure 6).

2.F. Tips for Instructors

This software is designed to help students to understand basic 2-axis graphing concepts. It allows the student to interactively “drive” a racing car and observe the speed/distance graph produced alongside the graph.

Below, there are a few points that you might like to consider when your students use this software.

- a. Check that the student uses appropriate **vocabulary** to describe what is happening (e.g. “the car slows down” rather than “the car goes down”).
- b. Try to make the car to go **slowly** all the way in at least one of the races. Use the **replay** to allow the student to look at the graph.
- c. Try to make the car to **stop** at least once in at least one of the races. Use the **replay** to allow the student to look at the graph and see what happens when the car stops.
- d. If you want to **skip a trial** or to continue with the next one, you can do this by closing the window at any time.
- e. Try to make the car go slowly when it goes along the **bends** in some of the trials.
- f. Observe how the **speedometer** changes at different speeds and how the **colour of the x-axis** changes when the car moves along the track.

3. Distribution

JRE 7

See the license for the Java SE Runtime Environment (JRE) 7 that is in the file **JavaSE_JavaFX_License.rtf** inside the folder **java-jre7**.

Interactive Racing Car

The "Interactive Racing Car" (Version 2.0) software was created at Sussex University (2012) by Grecia Garcia-Garcia. Please send comments or queries to: G.Garcia-Garcia@sussex.ac.uk

This software can be used and distributed for educational purposes at West Park C.E. First and Middle School (Worthing, UK). This software cannot be sold or used for commercial purposes. This software comes with absolutely no warranty.