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(54) **METHOD, MOBILE DEVICE, AND COMPUTER PROGRAM PRODUCT FOR REMOTELY
CONTROLLING AT LEAST ONE TOY CAR**

(57) It is described a method for remotely controlling multiple vehicles, the method comprising: receiving a first code by a mobile application, wherein the first code uniquely identifies a vehicle and a first set of functions of the mobile application, wherein the first set of functions of the mobile application remotely controls a set of functions of the uniquely identified vehicle; receiving a second code by the mobile application, wherein the second code identifies a toy vehicle and a second set of functions of the mobile application, wherein the second set of functions of the mobile application remotely controls a set of functions of the toy vehicle; determining the set of functions of the toy vehicle based on the set of functions of the vehicle, wherein the set of functions of the toy vehicle comprises at least a subset of the set of functions of the vehicle; and remotely controlling the toy vehicle based on the determined set of functions of the toy vehicle.

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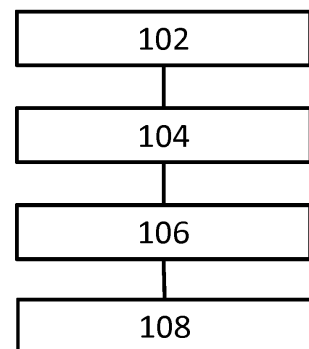


Fig. 1

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Description

Field of invention

[0001] The present invention relates to a method for remotely controlling at least one toy car. Further, the invention relates to a mobile device and a computer program product for remotely controlling at least one toy car.

Background Art

[0002] It is commonly known that a mobile device may be used to control a toy. For example, US 2002 111 117 A describes a remote control toy car set comprising a toy car with a housing having a driving device, a camera system, and a first radio module. The camera system is fixed on the housing for taking images of the toy car in motion and generating corresponding image signals, and the first radio module is fixed on the housing and electrically connects with both the driving device and the camera system. The first radio module transfers the image signals from the camera system and receives radio control signals in order to control the operations of the driving device. The remote control toy car set also includes a remote control device for controlling the toy car. The remote control device includes a display for displaying images, a remote control interface for generating control signals, and a second radio module for transferring both the image signals from the toy car to the display and the control signals from the remote control interface to the toy car.

[0003] Accordingly, there may be a need to simplify remote control of a toy car. In particular, there may be a need to simplify remote control of a toy car and a corresponding vehicle.

Summary of the Invention

[0004] This need may be met by the subject matter according to the independent claims. Advantageous embodiments of the present invention are described by the dependent claims.

[0005] According to a first aspect of the invention, there is provided a method for remotely controlling multiple vehicles. The method may be a computer-implemented method. The method may be implemented and/or executed by a mobile application running on a mobile device, e.g. a smart phone. Preferably, a vehicle of the multiple vehicles is a toy vehicle or a toy car, and a further vehicle of the multiple vehicles is a non-toy vehicle, i.e. a real vehicle. In the following, the term vehicle is used to refer to a real vehicle and the term toy vehicle is used to refer to a toy vehicle or a toy car. The method receives a first code by the mobile application, wherein the first code uniquely identifies a vehicle and a first set of functions of the mobile application, and wherein the first set of functions of the mobile application remotely controls a set of functions of the uniquely identified vehicle. For example,

the first set of functions may be determined by transmitting the first code to a server, e.g. a database server, to identify the first set of functions and receiving the first set of functions, e.g. a program code providing the first set of functions, from the database server by the mobile application. The first set of functions of the mobile application may be dependent on a functionality of the uniquely identified vehicle. The functionality of the vehicle may be specified by the first code received by the mobile application.

[0006] Further, the method receives a second code by the mobile application, wherein the second code identifies a toy vehicle and a second set of functions of the mobile application, wherein the second set of functions of the mobile application remotely controls a set of functions of the toy vehicle. The second set of functions of the mobile application may be dependent on a functionality of the toy vehicle. The functionality of the toy vehicle may be specified by the second code received by the mobile application. For example, the second set of functions may be determined by transmitting the second code to a server, e.g. a database server, to identify the second set of functions and receiving the second set of functions, e.g. a program code providing the second set of functions and/or configuration data which enables the mobile application to configure and/or to provide the second set of functions to a user, from the database server by the mobile application. The method determines the set of functions of the toy vehicle based on the set of functions of the vehicle, wherein the set of functions of the toy vehicle comprises at least a subset of the set of functions of the vehicle. Furthermore, the method remotely controls the toy vehicle based on the determined set of functions of the toy vehicle.

[0007] By receiving a second code which identifies a toy vehicle, the mobile application may control the toy vehicle and the real vehicle within the same mobile application. In addition, by determining a set of functions of the toy vehicle which is subset of functions of the real vehicle, the functions of the real vehicle and the toy vehicle can be compared. Accordingly, the control of the toy vehicle may be simplified by the mobile application. Further the functions of the toy vehicle may be efficiently compared with each other within the same application. Only a single code is required by the mobile application to identify a set of functions of the toy vehicle. Thus, the connectivity between the toy vehicle and the app is simplified using the second code by the application. A switching between a function of the toy vehicle and a function of the real vehicle may be further simplified. Accordingly, multiple vehicle may be controlled efficiently.

[0008] According to an embodiment of the invention, the first code may be a vehicle identification number which uniquely identifies the vehicle, and the second code may be a toy identification number which uniquely identifies the toy vehicle. This may provide the advantage that the identification of the vehicle and the identification of the set of functions corresponding to the vehicle is

simplified.

[0009] According to a further embodiment of the invention, a function of the first set of functions may provide a three dimensional view of the vehicle, and a function of the second set of functions may provide a three dimensional view of the toy vehicle. This may provide the advantage that a three dimensional view of a camera of the toy vehicle may be compared and/or evaluated with respect to a three dimensional view of a camera of the real vehicle in a simplified manner.

[0010] According to a further embodiment of the invention, a function of the first set of functions may remotely control one or more lights, a horn, and/or a camera of the vehicle, and a function of the second set of functions may remotely control one or more lights, a horn, and/or a camera of the toy vehicle. This may provide the advantage of providing a simplified control of lights, a horn, or a camera of a real vehicle and a toy vehicle within a single mobile application.

[0011] According to a further embodiment of the invention, a function of the first set of functions may request performance data and/or camera data from the vehicle, and a function of the second set of functions may request performance data and/or camera data from the toy vehicle. This may provide the advantage that performance and camera data may be compared between a toy vehicle and a real vehicle within a single mobile application.

[0012] According to a further embodiment of the invention, a function of the first set of functions may share performance data and/or camera data with another mobile application remotely controlling a further vehicle, and a function of the second set of functions may share performance data and/or camera data with another mobile application remotely controlling a further toy vehicle. This may provide the advantage that performance data and camera data of the real vehicle and the toy vehicle may be shared.

[0013] According to a further aspect of the invention there is provided a mobile device for remotely controlling multiple vehicles. The mobile device comprises a processor, a memory, and instructions stored within the memory, wherein the instructions, when executed on the processor, cause the mobile device to receive a first code by the mobile application, wherein the first code uniquely identifies a vehicle and a first set of functions of the mobile application, wherein the first set of functions of the mobile application remotely controls a set of functions of the uniquely identified vehicle. Further, the instructions, when executed on the processor, cause the mobile device to receive a second code by the mobile application, wherein the second code identifies a toy vehicle and a second set of functions of the mobile application, wherein the second set of functions of the mobile application remotely controls a set of functions of the toy vehicle, and to determine the set of functions of the toy vehicle based on the set of functions of the vehicle, wherein the set of functions of the toy vehicle comprises at least a subset of the set of functions of the vehicle. Finally, the instruc-

tions, when executed on the processor, cause the mobile device to remotely control the toy vehicle based on the determined set of functions of the toy vehicle.

[0014] According to a further aspect of the invention there is provided a computer program product for remotely controlling multiple vehicles, the computer program product, when being executed by a data processor, is adapted for controlling and/or for carrying out the method as described above.

[0015] As used herein, reference to a computer program or a computer program product is intended to be equivalent to a reference to a program element and/or to a computer readable medium containing instructions for controlling a computer system to coordinate the performance of the above described method.

[0016] The computer program may be implemented as computer readable instruction code in any suitable programming language, such as, for example, JAVA, C++, and may be stored on a computer-readable medium (removable disk, volatile or non-volatile memory, embedded memory/processor, etc.). The instruction code is operable to program a computer or any other programmable device to carry out the intended functions. The computer program may be available from a network, such as the World Wide Web, from which it may be downloaded.

[0017] The invention may be realized by means of a computer program respectively software. However, the invention may also be realized by means of one or more specific electronic circuits respectively hardware. Furthermore, the invention may also be realized in a hybrid form, i.e. in a combination of software modules and hardware modules.

[0018] It has to be noted that embodiments of the invention have been described with reference to different subject matters. In particular, some embodiments have been described with reference to method type claims whereas other embodiments have been described with reference to apparatus type claims. However, a person skilled in the art will gather from the above and the following description that, unless other notified, in addition to any combination of features belonging to one type of subject matter also any combination between features relating to different subject matters, in particular between features of the method type claims and features of the apparatus type claims is considered as to be disclosed with this document.

[0019] The aspects defined above and further aspects of the present invention are apparent from the examples of embodiment to be described hereinafter and are explained with reference to the examples of embodiment. The invention will be described in more detail hereinafter with reference to examples of embodiment but to which the invention is not limited.

Brief Description of the Drawings

[0020] Figure 1 shows an exemplary method for remotely controlling multiple vehicles.

Detailed Description

[0021] The illustration in the drawing is schematically. It is noted that in different figures, similar or identical elements are provided with the same reference signs or with reference signs, which are different from the corresponding reference signs only within the first digit.

[0022] In particular, **Figure 1** shows a method 100 for remotely controlling multiple vehicles, e.g. a motor vehicle, an electric vehicle, and/or a toy vehicle. As noted above, real vehicles like a motor vehicle or an electric vehicle are named as vehicles. In contrast, the term "toy vehicle" is used for a toy vehicle or a toy car. The method 100 may be implemented by a mobile application, which may be executed on a mobile device.

[0023] In particular, the method 100 may receive 102 a first code, e.g. a vehicle identification number, by the mobile application. The vehicle identification number may uniquely identify a vehicle and a first set of functions of the mobile application. The first set of functions may remotely controls a set of functions of the uniquely identified vehicle by the mobile application. For example, a camera of the vehicle may be controlled by the mobile application so that camera data of a camera of the vehicle is received by the mobile application.

[0024] Further, the method 100 may receive 104 a second code, e.g. a toy identification number, by the mobile application. The toy identification number may uniquely identify a toy vehicle and a second set of functions of the mobile application. For example, when receiving the second code, a media content, e.g. a 2D/3D picture or video, related to the toy vehicle may be displayed by the mobile application. The second set of functions may remotely control a set of functions of the toy vehicle. The method 100 may determine 106 the set of functions of the toy vehicle based on the set of functions of the vehicle. Preferably, the set of functions of the toy vehicle comprises at least a subset of functions of the vehicle. For example, the toy vehicle may comprise a camera. If the vehicle also comprises a camera, a function receiving camera data may be available for the vehicle and the toy vehicle. Further, if the vehicle and the toy vehicle are able to provide performance data, a function of the mobile application may retrieve the performance data of the vehicle and the toy vehicle. The performance data of the vehicle and the toy vehicle may be compared using the mobile application. The mobile application may convert performance measures of the toy vehicle and/or the vehicle so that the performance data can be compared.

[0025] Furthermore, the method 100 may remotely control 108 the toy vehicle based on the determined set of functions of the toy vehicle and/or the vehicle based on the set of functions of the vehicle. By switching between the vehicle and the toy vehicle in the mobile application, the respective set of functions may be activated so that a function of the set of functions of the vehicle or the toy vehicle may be controlled by the mobile application.

[0026] Advantageously, one single mobile application may be used to remotely control a vehicle and a toy vehicle. In order to remotely control the vehicle and/or the toy vehicle a single code may be entered to the mobile application. The single code uniquely identifies a set of functions of the toy vehicle and automatically provides access to a set of functions which may control the toy vehicle. Thus, the remote control of the toy vehicle is simplified efficiently. Further functions of the toy vehicle may be compared to functions of real vehicles using the mobile application.

[0027] It should be noted that the term "comprising" does not exclude other elements or steps and the use of articles "a" or "an" does not exclude a plurality. Also elements described in association with different embodiments may be combined. It should also be noted that reference signs in the claims should not be construed as limiting the scope of the claims.

List of reference signs:

[0028]

100	method
102	receive a first code
104	receive a second code
106	determine a set of function
108	remotely control a toy vehicle

Claims

1. Method for remotely controlling multiple vehicles, the method comprising:

- receiving a first code by a mobile application, wherein the first code uniquely identifies a vehicle and a first set of functions of the mobile application,
- wherein the first set of functions of the mobile application remotely controls a set of functions of the uniquely identified vehicle;
- receiving a second code by the mobile application, wherein the second code identifies a toy vehicle and a second set of functions of the mobile application,
- wherein the second set of functions of the mobile application remotely controls a set of functions of the toy vehicle;
- determining the set of functions of the toy vehicle based on the set of functions of the vehicle, wherein the set of functions of the toy vehicle comprises at least a subset of the set of functions of the vehicle; and
- remotely controlling the toy vehicle based on the determined set of functions of the toy vehicle.

2. Method according to claim 1, wherein the first code

is a vehicle identification number which uniquely identifies the vehicle; and
 wherein the second code is a toy identification number which uniquely identifies the toy vehicle.

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3. Method according to any one of claims 1 to 2, wherein a function of the first set of functions provides a three dimensional view of the vehicle; and wherein a function of the second set of functions provides a three dimensional view of the toy vehicle. 10
4. Method according to any one of claims 1 to 3, wherein a function of the first set of functions remotely controls one or more lights, a horn, and/or a camera of the vehicle; and wherein a function of the second set of functions remotely controls one or more lights, a horn, and/or a camera of the toy vehicle. 15
5. Method according to any one of claims 1 to 4, wherein a function of the first set of functions requests performance data and/or camera data from the vehicle; and wherein a function of the second set of functions requests performance data and/or camera data from the toy vehicle. 20 25
6. Method according to any one of claims 1 to 5, wherein a function of the first set of functions shares performance data and/or camera data with another mobile application remotely controlling a further vehicle; and wherein a function of the second set of functions shares performance data and/or camera data with another mobile application remotely controlling a further toy vehicle. 30 35
7. Mobile device for remotely controlling multiple vehicles, the mobile device comprising: 40
 - a processor,
 - a memory,
 - instructions stored within the memory, wherein the instructions, when executed on the processor, cause the mobile device to: 45
 - receive a first code by a mobile application, wherein the first code uniquely identifies a vehicle and a first set of functions of the mobile application, 50
 - wherein the first set of functions of the mobile application remotely controls a set of functions of the uniquely identified vehicle;
 - receive a second code by the mobile application, wherein the second code identifies a toy vehicle and a second set of functions of the mobile application, 55
 - wherein the second set of functions of the

mobile application remotely controls a set of functions of the toy vehicle;

- determine the set of functions of the toy vehicle based on the set of functions of the vehicle,
- wherein the set of functions of the toy vehicle comprises at least a subset of the set of functions of the vehicle; and
- remotely control the toy vehicle based on the determined set of functions of the toy vehicle.

8. Computer program product for remotely controlling multiple vehicles, the computer program product, when being executed by a data processor, is adapted for controlling and/or for carrying out the method as set forth in any one of the claims 1 to 6.

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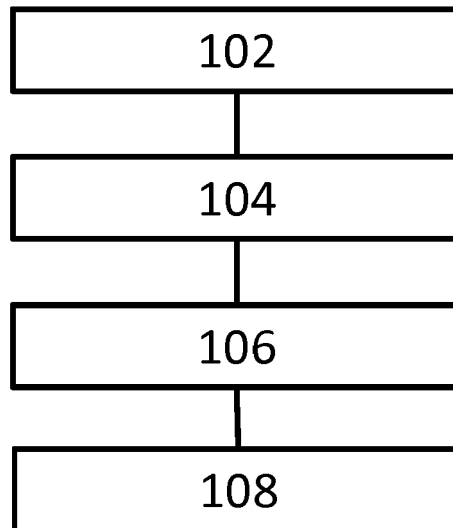


Fig. 1



EUROPEAN SEARCH REPORT

 Application Number
 EP 18 16 1144

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DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
A	WO 2015/059604 A1 (NAVE TAMIR [IL]) 30 April 2015 (2015-04-30) * paragraphs [0055] - [0069]; figures * -----	1-8	INV. A63H30/00 A63H30/04 A63H17/00
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A	WO 2013/066892 A1 (TRAXXAS LP [US]) 10 May 2013 (2013-05-10) * paragraphs [0016] - [0026], [0162]; figure 1 * -----	1,7,8	
			TECHNICAL FIELDS SEARCHED (IPC)
			A63H
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 27 August 2018	Examiner Bagarry, Damien
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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**ANNEX TO THE EUROPEAN SEARCH REPORT
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This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

REFERENCES CITED IN THE DESCRIPTION

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