PLUSH REMOTE CONTROLLED TOY VEHICLE

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ABSTRACT

The subject matter relates to a remote controlled toy vehicle incorporating the use of soft plush materials for the outer body of toy vehicles and design specifications limiting and/or eliminating elements which may be hazardous to children, specifically young children.
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FIELD OF THE SUBJECT MATTER

[0001] The present subject matter relates generally to a remote controlled toy vehicle and more particularly to a motor driven remote controlled toy vehicle incorporating a plush outer body.

BACKGROUND OF THE SUBJECT MATTER

[0002] All publications herein are incorporated by reference to the same extent as if each individual publication or patent application was specifically and individually indicated to be incorporated by reference. The following description includes information that may be useful in understanding the present subject matter. It is not an admission that any of the information provided herein is prior art or relevant to the presently claimed subject matter, or that any publication specifically or implicitly referenced is prior art.

[0003] Remote controlled motor driven toy vehicles have always been very popular amongst children. Such toys provide entertaining and exciting play for a child in the form of having the child steer the vehicle through obstacles, traverse steep grades, and drive through rough terrain. In addition, the manipulation of a remote controlled vehicle utilizing a transmitter device develops the hand-eye coordination of a child, which is a favorable sensory development tool for younger children. However, due to the cost of the production of radio controlled toy vehicles and the dangers associated with sharp, plastic and/or metal elements utilized in the construction and design of the toy vehicles, existing radio controlled toy vehicles have been limited to children above an appropriate age. In fact, by its nature and necessity of durability, existing radio controlled toy vehicles have been constructed of hard plastics and/or metals, rendering the current art inappropriate for younger children.

[0004] However, as technology has advanced and the underlying cost of electronics and elements for construction of toy vehicles has diminished, the advent of creating remote control toy vehicles for younger children has become more appropriate and economically desirable. Still, issues regarding the use of hard plastics and/or metals in the construction of these remote control toy vehicles remains a bar for use by young children.

SUMMARY OF THE SUBJECT MATTER

[0005] The present subject matter discloses a remote controlled toy vehicle incorporating the use of soft plush materials for the outer body of toy vehicles and design specifications limiting and/or eliminating elements which may be hazardous to young children. Accordingly, safety concerns once restricting remote controlled toy vehicles for play with younger children, have herein been eclipsed by the present subject matter.

[0006] Combined with the reduction in production costs for remote controlled toy vehicles, the novel use of plush materials to reduce or eliminate safety hazards inherent in the prior art, makes the present subject matter a much welcomed and novel concept in the field of remote controlled toy vehicles.

BRIEF DESCRIPTION OF THE DRAWINGS

[0007] Exemplary embodiments are illustrated in referenced figures. It is intended that the embodiments and figures disclosed herein are to be considered illustrative rather than restrictive.

[0008] FIG. 1 is a top view of the toy vehicle with the soft outer body and soft filler removed, depicting the inner mechanisms;

[0009] FIG. 2 depicts a schematic for the power supply of the toy vehicle and transmitter; and

[0010] FIG. 3 depicts a cut-away perspective view of the toy vehicle.

DETAILED DESCRIPTION

[0011] One skilled in the art will recognize many methods and materials similar or equivalent to those described herein, which could be used in the practice of the present subject matter. Indeed, the present subject matter is in no way limited to the methods and materials described.

[0012] Referring now to the drawings in which like parts are designated by like reference characters throughout the several views. FIG. 1 shows one embodiment of a radio control toy vehicle according to the subject matter, in which the toy vehicle 10 contains an electric driving motor 12, a receiver 14 (which, in various embodiments, may be wireless), a steering mechanism 16, and a speed controller 22. Further, the toy vehicle 10 utilizes a power source 18 for driving the toy vehicle components, all of which are fitted on an elongated tub chassis 20. In various embodiments, the chassis 20 may be substantially rectangular, conical-shaped, one-piece and/or plastic-molded. A chassis cover 36 (see FIG. 3) is mated to the chassis 20 for encapsulating the speed controller 22, receiver 14, power source 18, electric driving motor 12, and steering mechanism 14, of the toy vehicle 10. A transmitter 34 (not shown, and which, in various embodiments, may be wireless) is used for controlling the toy vehicle 10 and accommodates an independent power source.

[0013] Further to FIG. 1 the chassis 20 contains a rear axle 24 in rotatable communication with the chassis 20 wherein the rear axle 24 contains a spur gear 26 of an appropriate size and gearing. The electric driving motor 12 contains a pinion gear 28 at the end of the motor shaft, wherein the pinion gear 28 is mated to the spur gear 26 (collectively “the gear box”) and initiation of the electric driving motor 12 enacts propulsion of the rear axle 24. At the two distal ends of the rear axle 24, rear wheels 30 are attached, and which, in various embodiments may be constructed of soft rubber and/or plush material. The electric driving motor 12 can be propelled in the clockwise or counterclockwise rotation, forcing the rear axle 24 to thrust the rear wheels 30 of the toy vehicle 12 forward or backwards. Power provided to the electric driving motor 12 is regulated by an electric speed controller 22. The speed controller 22 further acts as a conduit for supplying power from the power source 18 to the receiver 14, steering mechanism 16, and electric driving motor 12. The speed controller 22, power source 18, electric driving motor 12, and steering mechanism 14 are all mounted to the chassis 20 of the toy vehicle 10, and are in electronic communication with one another to enable electronic operation of the toy vehicle 10. The chassis 20 is mated to the chassis cover 36 (see FIG. 3) which encapsulates the speed controller 22, receiver 14, gear box, power source 18, electric driving motor 12, and steering mechanism 14.

[0014] The steering mechanism 16 contains articulating joints 32 found at the two distal ends of the steering mechanism 16. The articulating joints 32 allow for movement in a single vertical plane. Attached to each of the two articulating joints are front wheels 38, which, in various embodiments may be constructed of soft rubber and/or plush material. The
steering mechanism 16, through the articulating joints 32, enables the change of direction in the front wheels 38 causing the toy vehicle 10 to turn. Power to the steering mechanism 16 is provided by the power source 18 through the speed controller 22.

[0015] FIG. 2 shows a basic power circuit for the embodiment as shown in FIG. 1, as the well as the transmitter 34, in which the motor 12, receiver 14, steering mechanism 16, power source 18 and speed controller 22 rest in the chassis 20 of the toy vehicle 10. The transmitting circuit 46 and associated power source 44 comprise the wireless transmitter 34. Signals transmitted from the transmitter 34 are received by the receiver 14, and signaled to the speed controller 22. The speed controller 22 sends a power supply to the respective steering mechanism or motor, as directed by the transmitter 34. The power source 18 is directly connected to the speed controller 22, which provides a common power source for a electric driving motor 12, the steering mechanism 16, as well as for the receiver 14.

[0016] FIG. 3 shows a cut-away view of the toy vehicle 10, depicting the chassis 20 containing the speed controller 22, power source 18, receiver 14, gear box, electric driving motor 12, and steering mechanism 16. FIG. 3 further depicts the soft filler 42 encapsulating the combined chassis 20 and chassis cover 36 body. The plush fabric body 40 covers the chassis 20, chassis cover 36, and associated soft filler 42 to create the plush exterior of the toy vehicle 10. The rear wheels 30 are attached to the rear axle 24, and the front wheels 38 are attached through the articulating joints 32 to the steering mechanism 16. In one embodiment of the toy vehicle, a battery may be used as the power source for the radio control toy vehicle. Furthermore, the battery may be provided with the recharging connector terminal (recharging jack), so that a special recharging power source for the batteries is not required for recharging the battery of the toy vehicle, resulting in convenient and economical operation.

[0018] In another embodiment of the toy vehicle, additional wheels and complementing axle(s) may be attached to the chassis to facilitate a different overall look to and/or operation of the toy vehicle. Additional wheels may be constructed of plush material and/or soft rubber, and may be powered (like the rear wheels 30) and/or articulating (like the front wheels 38).

[0019] In yet another embodiment of the toy vehicle, the plush fabric body may comprise interchangeable elements, such as but not limited to, a nose, ears, mouth and clothing, for attachment by an appropriate attachment means, to the plush fabric body of the toy vehicle. Appropriate attachment means include, but are in no way limited to, Velcro®, magnets, pins and other means known now or devised later in the art.

[0020] In another embodiment of the toy vehicle, a front axle may be mounted in rotatable communication with the chassis wherein the front axle, in cooperative operation with the steering mechanism 16 described in the preferred embodiment, contains a front spur gear of an appropriate size and gearing. A front electric driving motor is mounted to the chassis and contains a front pinion gear at the end of the motor shaft, wherein the front pinion gear is matted to the front spur gear (collectively “the front gear box”) and initiation of the front electric driving motor and propulsion of the front axle. At the two distal ends of the front axle, front wheels 38 are attached, and which, in various embodiments may be constructed of soft rubber and/or plush material. The front electric driving motor can be propelled in the clockwise or counterclockwise rotation, forcing the front axle to thrust the front wheels 38 of the toy vehicle 12 forward or backwards. Power provided to the front electric driving motor originates from the power source 18, and is regulated by an electric speed controller 22.

[0021] In another embodiment, the toy vehicle contains audio circuitry intended to produce various audio outputs in response to various inputs detected by sensors ("sensory inputs") and created by the user and/or the environment. The audio circuitry is mounted to the chassis of the toy vehicle and include components such as a speech processor, sensory inputs, a processor for administration of various sensory inputs, a speaker for generating audio outputs, and a speech chip for generating human speech and sound effect output in response to various sensory inputs. The various outputs may include spoken expressions corresponding to the various inputs detected by the sensors. The audio outputs are made through a speaker which may be mounted in the toy vehicle chassis. The audio circuit and its components may be powered by the power source. Various sensory inputs include but are not limited to, audio sensors, light sensors, motion sensors, pressure transducers, push buttons and touch sensors.

[0022] In another embodiment of the subject matter, communication between the receiver and transmitter may be accomplished by radio frequency, infrared, laser light, acoustic energy, or other forms of energy know in the art to transfer information without the use of wires.

[0023] In yet another embodiment of the toy vehicle, the plush fabric body may be removable for cleaning. Furthermore, the plush fabric body may be constructed of material capable of being drawn on by permanent or non-permanent paint or ink.

[0024] Various embodiments of the subject matter are described above in the Detailed Description above. While these descriptions directly describe the above embodiments, it is understood that those skilled in the art may, from time to time, conceive modifications and/or variations to the specific embodiments shown and described herein. Any such modifications or variations that fall within the purview of this description are intended to be included therein as well. Unless specifically noted, it is the intention of the inventors that the words and phrases in the specification and claims be given the ordinary and accustomed meanings to those of ordinary skill in the applicable art(s). Furthermore, no limitations are intended to the details of construction or design herein shown other than as described in the claims below. It is, therefore, evident that the particular embodiments disclosed above may be altered or modified and all such variations are considered within the scope and spirit of the subject matter. Accordingly, the protection sought herein is as set forth in the claims below.

What is claimed is:

1. A remote controlled toy vehicle comprising:
   a chassis;
   a receiver affixed to the chassis for receiving controlling instructions for operation of the toy vehicle;
   a speed controller affixed to the chassis;
   a steering mechanism affixed to the chassis;
   a motor and gear box affixed to the chassis;
   a power source affixed to the chassis for providing energy to the motor, the speed controller, the receiver and the steering mechanism;
a rear axle and wheel assembly supported for rotation by
the chassis and in mechanical communication with the
gear box;
a front axle and wheel assembly supported for rotation by
the chassis and in mechanical communication with the
steering mechanism; and
a plush fabric body casing the chassis.
2. The remote controlled toy of claim 1, further comprising
a soft filler surrounding at least a portion of the chassis.
3. The remote controlled toy of claim 1, further comprising
a removable plush fabric body.
4. The remote controlled toy of claim 1, wherein the plush
fabric body is constructed of material suitable for application
of paint or ink.
5. The remote controlled toy of claim 1, further comprising
an audio circuit for producing various audio outputs in
response to various sensory inputs.
6. The remote controlled toy of claim 1, wherein the power
source is selected from the group consisting of non-rechargeable
batteries and rechargeable batteries.
7. The remote controlled toy of claim 1, wherein the toy
vehicle comprises a recharging terminal for recharging batt-
eries.
8. The remote controlled toy of claim 1, wherein the toy
vehicle comprises at least two wheels.
9. The remote controlled toy of claim 1, wherein the
receiver is a wireless receiver.
10. The remote controlled toy of claim 9, wherein the
method of interface by the wireless receiver is selected from
the group consisting of radio frequency, infrared, laser light,
aesthetic energy, and electromagnetic waves.
11. The remote controlled toy of claim 1, further comprising
a transmitter for sending controlling instructions for
operation of the toy vehicle to the receiver.
12. The remote controlled toy of claim 11, wherein the
transmitter is a wireless transmitter.
13. The remote controlled toy of claim 9, wherein the
method of interface by the wireless transmitter is selected
from the group consisting of radio frequency, infrared, laser
light, acoustic energy, and electromagnetic waves.
14. The remote controlled toy of claim 1, further comprising
a second electric drivable motor and second gear box for
movement of the chassis.
15. The remote controlled toy of claim 1, further comprising
an interface device port, such as a universal serial bus port,
for

16. In combination, a remote controlled toy vehicle comprising:
a chassis,
a receiver affixed to the chassis for receiving controlling
instructions for operation of the toy vehicle,
a speed controller affixed to the chassis,
a steering mechanism affixed to the chassis,
a motor and gear box affixed to the chassis,
a power source affixed to the chassis for providing
energy to the motor, the speed controller, the receiver
and the steering mechanism,
a rear axle and wheel assembly supported for rotation by
the chassis and in mechanical communication with the
gear box,
a front axle and wheel assembly supported for rotation
by the chassis and in mechanical communication with
the steering mechanism, and
a plush fabric body casing the chassis; and
a transmitter to provide the controlling instructions for
operation of the toy vehicle, comprising:
a transmitting circuit, and
a power source.
17. The combination of claim 16, wherein the receiver is a
wireless receiver and the transmitter is a wireless transmitter.
18. The combination of claim 17, wherein the method of
interface by the wireless receiver and wireless transmitter is
selected from the group consisting of radio frequency, infra-
red, laser light, acoustic energy, and electromagnetic waves.
19. The combination of claim 16, further comprising an
audio circuit for producing various audio outputs in response
to various sensory inputs.
20. A plush fabric body for a remote controlled toy vehicle,
adapted to mechanically interact with a chassis of said remote
controlled toy vehicle and configured to substantially obscure
from view components of the toy vehicle selected from the
group consisting of the chassis, a receiver affixed to the chas-
sis, a speed controller affixed to the chassis, a steering mecha-
nism affixed to the chassis, a motor and gear box affixed to
the chassis, a power source affixed to the chassis, a rear axle in
mechanical communication with the chassis, a front axle in
mechanical communication with the chassis, and combina-
tions thereof.

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