Outline for Technical Description of an electric skateboard

I. Introduction

A. History of Skateboards:

Skateboarding's history traces back to the late 1940s and early 1950s, emerging as a recreational activity for surfers when ocean waves were flat. The first makeshift skateboards were essentially wooden planks or boxes mounted on roller-skate wheels.In recent years, skateboarding has gained even broader recognition, becoming a global phenomenon with a rich subculture. It was officially recognized as an Olympic sport and made its debut at the Tokyo 2020 Summer Olympics, further solidifying its position in the international sports arena.

B. Innovation:

- Skateboards were innovated through a series of incremental developments and creative adaptations over several decades.
- Skateboarding's evolution has been driven by the creativity and ingenuity of skateboarders, as well as advancements in materials and technology.

II. Body

A. Basic product description-

The electric skateboard consists of 11 parts and 7 sub-parts.

B. Parts and its subparts of electric skateboard and their functionality:

1. **Deck:** The deck of a skateboard is the flat, usually rectangular, board upon which a rider stands. It is one of the most essential parts of a skateboard and serves as the primary surface for riders to perform tricks and maneuvers.

1.1. Grip Tape: The top surface of the deck is covered with grip tape, a rough, sandpaper-like material.

1.1.1. Function: The grip tape applied to the deck plays a pivotal role in rider safety, providing traction and preventing slips even during high-speed rides.

2. **Trucks:** The truck is the T-shaped metal or aluminum assembly that connects the skateboard deck to the wheels.

2.1. Base plate: The base plate refers to a crucial component of the skateboard truck. It is the flat and a horizontal part of the truck that attaches to the bottom of the skateboard deck.

2.1.1. Function: The base plate provides stability and support to the skateboard, helping maintain the proper distance and angle between the deck and the wheels. This stability is crucial for the rider's control and balance.

2.2: Bushing: Bushings are small, cushion-like components made from rubber or urethane that fit inside the skateboard trucks. They are placed on the kingpin, which is the large bolt that runs through the center of the truck.

2.2.1. Function: Bushings are essential for controlling how easily the trucks turn. They come in various shapes and durometers (hardness ratings) to provide different levels of responsiveness and stability.

2.3. Washer: Washers are flat, round metal discs that are placed on the kingpin, sandwiching the bushings. There are two types of washers: flat washers and cup washers. Flat washers are placed between the bushings and the skateboard deck. Cup washers are placed on the outside of the bushings.

2.3.1. Function: Prevent the bushings from digging into the deck, ensuring a more even distribution of force.

2.4. Truck Hanger: The truck hanger is a crucial component of the skateboard truck. The hanger is the horizontal, T-shaped part of the truck that connects to the axle and supports the wheels.

2.4.1. Function: The truck hanger plays a significant role in determining the skateboard's turning ability. Its width, along with the width of the overall truck, influences the skateboard's stability and maneuverability. Wider hangers provide more stability and are suitable for riders who prefer straightener, more stable rides, such as downhill riders. Narrower hangers, on the other hand, offer quicker and sharper turns, making them ideal for street skating and technical tricks.

3. **Wheels:** four wheels are needed for a skateboard to maintain stability at high speeds while providing exceptional traction.

3.1. Bearings: They are small, round devices typically made of steel.

3.1.1. Function: Bearings are essential for the wheels because they allow the wheels to move freely on the truck's axle. Two bearings are needed per wheel.

3.2. Spacers: Spacers are small cylindrical components placed between the bearings inside the wheels.

3.2.1. Function: It maintains a consistent gap (or space) between the bearings, preventing them from being pressed too tightly together when the wheel nut is tightened onto the axle.

4. **Hardware:** Different types of bolts and nuts are required for all the parts of the skateboard to attach its deck and various parts.

5. **Motor:** Motor is responsible for generating motion and propelling the skateboard forward and backward.

6. **Motor Controller:** The motor controller is the electronic component that regulates the speed and direction of the electric skateboard. It receives signals from the remote control and adjusts the power sent to the motors accordingly.

7. **ESC (Electronic Speed Controller):** The ESC is an essential part of the electric skateboard's control system. It interprets the signals from the remote control and adjusts the motor's speed and direction accordingly.

8. **Battery:** The battery pack provides the power needed to run the electric skateboard. It is usually lithium-ion or lithium-polymer and is rechargeable.

9. **Charging Port:** The electric skateboard features a charging port where the charger is connected to recharge the battery.

10. **Battery and electronics enclosure:** A protective casing that houses crucial electrical components, including the battery, motor controller, ESC (Electronic Speed Controller), wiring, and other electronic elements.

11. **Remote Control:** The rider uses a remote control to accelerate, brake, and control the speed and direction of the electric skateboard. It communicates wirelessly with the motor controller.

C. Analysis of the product and its functionality

III. Conclusion

1. Electric skateboard technology, seamlessly integrating its main components and sub-parts for an unparalleled riding experience.

IV. References