

## Teetoy – teeth cleaning device for Children Revolutionizing Children’s Dental Care with Nature-Inspired Precision



Addressing the intricacies of dental hygiene in the critical 3-5 age range has presented a persistent challenge, marked by discomfort, taste aversion, and a general lack of enthusiasm. Acknowledging the formative nature of this age for establishing lifelong oral health habits, an exhaustive research initiative unfolded to comprehend the nuanced dental hygiene struggles faced by this demographic and craft an innovative solution.

Through direct interviews and comprehensive Google surveys involving 30 children and their parents, a notable 59.1% of children expressed a distinct disinterest in the teeth-brushing ritual. Reasons varied from the perceived hardness of bristles to the monotonous nature of the process, coupled with elements of fear and a lack of parental supervision. Armed with this nuanced data, the research delved into the realm of nature for inspiration, focusing specifically on how animals' inherent cleanliness habits could inform a groundbreaking approach to children's dental care.

This journey of inspiration culminated in the conceptualization of "Teetoy" – a visionary teeth cleaning device designed to infuse playfulness, enjoyment, and efficacy into the brushing process for children. The device comprises three integral parts: the head, neck, and handle.

In the intricate world of feline grooming, the design of a cat's tongue emerges as a masterpiece of evolutionary engineering, finely tuned for optimal cleanliness and self-maintenance. At the heart of this ingenious system are the papillae, small structures covering the tongue's surface, each playing a crucial role in the cat's grooming ritual. This became the foundational inspiration behind the innovative ideation and design of "Teetoy."

The papillae's shape is pivotal in the effectiveness of fur cleaning. Cats possess backward-facing barbs on these papillae, aptly named "hooklets," composed of keratin—the same resilient material found in human hair and nails. Arranged in a V-shape at the tip of each papilla, these hooklets point towards the back of the tongue, a strategic configuration crucial to the cat's grooming prowess.

The head of Teetoy mirrors the cat's tongue, showcasing curved and hollow-tipped bristles. The removable head ensures ease of replacement, and the thoughtfully designed empty cavity inside allows toothpaste to seamlessly pass through the bristles, amplifying the effectiveness of the cleaning process.

Delving deeper into the natural world, the shape of the bristles on Teetoy is meticulously crafted with tips that are curved and bent, mirroring the cat's tongue. This design ensures a more effective clean by reaching challenging spaces between teeth and along the gumline, while also being inherently gentler on gums and enamel, effectively addressing concerns associated with traditional toothbrushes.



The 360-degree head, with bristles positioned in clockwise and counterclockwise directions, provides a comprehensive cleaning experience, deftly addressing the common reluctance children often exhibit toward conventional toothbrushes.

Further drawing inspiration from children's affinity for building blocks and related activities, the neck and handle of Teetoy are innovatively designed to resemble these familiar toys. This introduces an element of playfulness into the dental routine while strategically promoting the development of motor skills in young children. The spherical and versatile shape enhances the overall experience, encouraging creativity and imagination during the brushing process.

In conclusion, Teetoy stands as a meticulously crafted and promising solution to the age-old challenge of encouraging children to embrace dental hygiene. By seamlessly infusing nature-inspired elements and centering the design around the joy of play, Teetoy seeks to revolutionize oral care for children aged 3-5, making teeth cleaning an enjoyable and essential part of their daily routine.



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#### Article by

**Raini Kandanarachchi**

Department of integrated Design, Faculty of Architecture, University of Moratuwa, Sri Lanka.