

Enhancing at-home hair root coloring precision

BEAUTY AND SKINCARE

Background

As part of an innovative global leader in the beauty industry, we offer a comprehensive range of products tailored to the beauty and hair care market. We are dedicated to empowering consumers to express their individuality through our high-quality and innovative at-home hair color products, with solutions that cater specifically to hair root coloring.

At-home hair root coloring presents several challenges for consumers, particularly in achieving consistent, professional-quality results. A major issue is that many users do not fully engage with provided instructions, leading to improper application techniques. This results in uneven coverage, scalp and skin staining, and unintended overlap of color on already-dyed hair, which causes color build-up and uneven tones. Additionally, existing root touch-up tools on the market lack the precision and adaptability required for different hair types and textures, further complicating the application process. These issues frustrate users who want to manage root regrowth and maintain a uniform, natural look between salon visits. Addressing these gaps with more intuitive guidance could help consumers achieve better, more consistent results while improving their overall experience with DIY root coloring applications.

What we're looking for

We are looking for technologies or components that can be integrated into an intuitive guidance system for consumers applying color to their roots at home. This could include innovations in application tools, materials, or real-time feedback mechanisms that enhance the user's experience, improve application precision, and lead to more satisfying outcomes.

Solutions of interest include:

- Haptic technology that can be integrated into an applicator to provide tactile feedback, such as vibrations or pulses, guiding users for precise color application.
- Sensors that detect hair texture, color build-up, or root length.
- Smart feature that adjusts dye amount based on hair texture, root length, or buildup.
- 3D mapping and scanning connected to a smartphone or device to create a detailed model of the scalp for tailored coloring guidance.
- Adaptation of existing technologies developed for other applications, such as toothbrushes that provide real-time feedback to users about brushing technique, detecting areas that are missed or over-brushed.
- Other technologies that enable the design of a smart applicator with real-time feedback.

Our must-have requirements are:

- Easy and intuitive to use.
- Ability to integrate the technology to either a tool/applicator or a mobile app.
- Compatible with all hair types, including straight, curly, and textured hair.
- Real-time analysis to provide feedback for accurate application.

Our nice-to-have's are:

- Contribute to the development of an alert system for detecting incorrect application (beyond root line, uneven distribution, missed areas).
- For solutions including an applicator: durable, reusable, cordless, ergonomic, and easy to charge, designed for multiple uses and suitable for all ages and hand sizes.

What's out of scope:

- Tools that are too expensive or pose safety risks.
- Tools similar to Colorsonic.
- Solutions that are not user-friendly or are too heavy to handle comfortably.
- Devices larger than a typical hair dryer.

Acceptable technology readiness levels (TRL): Levels 4-9

1. Basic principles observed
2. Concept development
3. Experimental proof of concept
4. Validated in lab conditions
5. Validated in relevant environment
6. Demonstrated in relevant environment
7. Regulatory approval
8. Product in production
9. Product in market

What we can offer you

Eligible partnership models:

- Sponsored research
- Co-development

Benefits:**Sponsored Research**

Funding is available for development of methods or models that provide the desired outcome described above. Funding amount to be determined by mutually agreed-upon statement of work and consistent with existing funding range for graduate or postdoctoral level research.

Expertise

Partners will be connected to innovative global leaders in the beauty industry with over 100+ years of history & industry expertise.

Facilities and Services

We have facilities and labs in the US, Asia & Europe available for testing of potential solutions.

Please contact the University of South Florida Technology Transfer office representative for submission – Karla Schramm at kschramm@usf.edu