

KIDALERT CLIP: A DISCREET SOS HAIR CLIP TO ENHANCE SAFETY OF THE GIRL CHILD

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Keywords:

Child Safety, Wearable Technology, SOS Alert System, Bluetooth Low Energy, Smart Accessories.

Introduction:

1. The increasing concern over the safety of girl children in public and private spaces highlights the need for discreet and effective safety solutions. Traditional safety devices are often bulky, noticeable, or difficult for children to use during emergencies. The concern regarding the safety of women and children has led to the development of various technological solutions, particularly in the domain of wearable safety devices and emergency alert systems.
2. This project introduces KidAlert Clip, a compact and discreet SOS-enabled smart hair clip designed specifically for girl children. The device integrates a hidden trigger mechanism that, when activated, sends an emergency alert along with location information to pre-defined guardians using Bluetooth Low Energy (BLE) technology.
3. The innovation lies in embedding safety technology into a commonly used accessory, making it both user-friendly and socially acceptable. The project focuses on affordability, usability, and real-life applicability, ensuring accessibility for a wider population.

Objectives:

1. To develop a basic conceptual and functional prototype of a discreet, low-cost SOS hair clip designed to enhance the safety of girl children.
2. To demonstrate simple Bluetooth-based alert triggering using readily available components that connect to a parent/guardian's mobile device.
3. To design the hair clip in a way that is comfortable, lightweight, and visually suitable for young girls through iterative design feedback.
4. To conduct small-scale usability testing with girl children, under supervision, to understand their comfort level and ease of using the clip.
5. To collect parental feedback on the perceived usefulness, safety value, and practicality of implementing such a wearable safety accessory.

6. To assess the cost feasibility, potential durability, and scope for scaling the product for wider use among school-going girl children.

Methodology:

The project

- Define the idea, features, and purpose of the SOS hair clip for girl child safety.
- Review child safety issues and existing wearable solutions to understand the need and gaps.
- Prepare a simple design for the clip and assemble a basic working prototype using a small switch and Bluetooth-based alert trigger.
- Test the clip with a small group of girl children (with parental supervision) to assess comfort, ease of use, and acceptance.
- Collect feedback from parents regarding usefulness, safety perception, and practicality.
- Estimate component costs, evaluate ease of production, and assess potential for wider adoption.
- Prepare the final report with findings, photographs, and recommendations

Result and Conclusion:

1. The project successfully developed a functional prototype of the KidAlert Clip, a discreet SOS-enabled wearable designed for girl children. The device integrates a hidden micro-switch within a hair clip, which when activated sends an alert signal through Bluetooth Low Energy (BLE) to a paired mobile device. The prototype demonstrated effective SOS triggering under controlled testing conditions.
2. The device was tested with a small group of users under supervision to evaluate comfort, usability, and response efficiency. Observations indicated that the clip was lightweight, comfortable, and easy to use, making it suitable for daily wear. The hidden design ensured that the device remained unnoticed, which is a critical factor during emergency situations.
3. Feedback from parents highlighted that the concept provides an added layer of safety and reassurance. The results also showed that the system is cost-effective and feasible for large-scale implementation.
4. In conclusion, the project proves that integrating safety technology into everyday accessories can significantly improve usability and adoption. The KidAlert Clip offers a practical, affordable, and innovative solution for enhancing the safety of girl children.

References:

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Future Scope:

The future scope of this project includes:

1. The project can be enhanced by improving the device with advanced communication features and better durability for real-world usage.
2. Large-scale testing and feedback collection to improve design and usability
3. The prototype can be further developed for cost-effective mass production and wider adoption in schools and communities.

Overall, the future scope lies in transforming the current prototype into a fully functional, scalable, and widely adoptable safety solution that can significantly enhance the security of girl children in everyday environments.