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## Patent Search

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### Abstract:

The invention relates to a microcontroller-based safety device for women designed to protect against potential dangers. The device comprises a touch sensor embedded within the sole of a woman's shoe, a microcontroller, an embedded system application, and an Internet of Things (IoT) based mobile application. The touch sensor, which detects the presence or absence of foot contact, is connected to the microcontroller that triggers the safety mechanism upon the loss of contact, indicating the removal of the shoe. The safety mechanism sends an alert containing the user's location (latitude and longitude) to previously saved contacts via an SMS and a notification through the IoT-based mobile application. This automatic alert mechanism is activated by the simple, discreet action of removing the shoe, making it difficult for potential attackers to identify and destroy the device. This invention aims to increase women's safety by providing a discreet, easy-to-use, automatic safety device that alerts contacts with the user's real-time location in distress situations.

### Complete Specification

Description:Field of Invention: The present invention relates to personal safety devices, particularly a microcontroller-based device designed to increase women's safety by alerting their contacts in potentially dangerous situations.

Background of the Invention:

The rise of violence and assault against women has become a global concern, necessitating the development of adequate safety measures. Despite advancements in technology and law enforcement, women still face a high risk of violence, including physical assault, sexual harassment, and stalking. These incidents often occur unexpectedly, leaving the victim little time to react or seek help.

Current safety devices and applications available in the market have several limitations. Most of these devices are visible or easily accessible, such as panic buttons on keychains or mobile applications requiring users to access their phones and trigger an alert. These solutions are only sometimes practical or effective as, in a situation of distress, a woman may not have the time or ability to access her phone or any other visible device. Additionally, visible devices can be easily spotted and disabled by the attacker.

Furthermore, existing solutions often rely on the user to trigger the alert actively, which may not always be possible in extreme distress or physical restraint. In some cases, the victim may not even be aware of the impending danger, such as being followed by a potential attacker.

Hence, there is a need for a discreet, easily accessible, and automatic safety device that can alert the user's contacts in situations of distress without requiring any active input from the user or drawing attention to the device. This invention aims to address these issues by developing a microcontroller-based safety device embedded within the sole of a woman's shoe. It is activated by removing the shoe and sends an alert with the user's location to their saved contacts.

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