**Micro:bit Security System Design Specification**

**Introduction**This document outlines the design and functionality of a security system developed using the micro:bit. The system utilizes two sensors attached to the micro:bit to detect different types of disturbances.

* Accelerometer (Shaking).
* Light Sensor (Light Intensity).

The primary goal of this system is to provide a simple yet effective way to monitor security-related events.

**System Overview**The security system is designed around the micro:bit, a versatile microcontroller board. It employs two separate sensors built into the micro:bit to detect potential security breaches. The system is capable of being reset after an alarm has been triggered and can identify which sensor triggered the alarm.

**Sensors Used**1. Light Sensor: Detects changes in ambient light levels. Useful for identifying unexpected light changes that might indicate unauthorized access or activity.  
2. Accelerometer (Shake Sensor): Senses physical movement of the micro:bit. This can be used to detect tampering or movement of objects to which the micro:bit is attached.

**Functional Description**The system operates as follows:  
- The light sensor continuously monitors ambient light. If the light exceeds a predefined threshold, indicating a potential breach, the alarm is triggered.  
- The accelerometer detects a 'shake' gesture, indicative of movement or tampering, which also triggers the alarm.  
- Once the alarm is triggered, the micro:bit displays a visual icon (Skull for Shaking & Ghost for Light) and plays an alarm melody.  
- The system can be reset using a button press, stopping the alarm and preparing the system for the next detection.

**Conclusion**This micro:bit-based security system offers a straightforward yet effective solution for basic security monitoring. It leverages the onboard sensors to detect disturbances and promptly alerts the user, making it suitable for educational and hobbyist projects.