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REVOLUTIONIZING LANDMINE DETECTION: THE METAL AND BOOM DETECTING ROBOTIC SYSTEM

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Abstract: The Metal and Boom Detecting Robotic System represents a significant advancement in addressing the critical need for efficient and safe landmine removal by leveraging the principles of electromagnetic induction. This innovative robotic platform integrates advanced sensors and sophisticated signal processing techniques to detect metallic objects and identify acoustic signals associated with explosive devices. By reducing human involvement, the system enhances the speed and accuracy of threat detection while simultaneously minimizing potential hazards. The primary objective of this project is to develop a cost-effective and user-friendly metal detector equipped with a buzzer for immediate alerting, facilitating the seamless detection and removal of hazardous landmines. A dedicated software program will be engineered for the PIC16F877A microcontroller, utilizing the C programming language and the MPLAB XC8 IDE. This software will be responsible for signal processing, metal detection, and displaying results on an LCD screen, ensuring real-time feedback and enhanced operational efficiency. This integrated approach offers a promising solution for the efficient and safe removal of landmines, thereby contributing significantly to humanitarian efforts in conflict-affected regions. The Metal and Boom Detecting Robotic System represents a pivotal advancement in landmine detection technology, providing a proactive and effective means to mitigate the devastating impact of landmines on civilian populations and facilitate post-conflict recovery and reconstruction efforts.

Keywords: Buzzer; Detect; Landmine; Metal