

“Pulse-based ultra-wideband ground penetrating radar for anti-personnel landmine detection”, pp.193-201

Gerald Oßberger, Thomas Buchegger, Erwin Schimbäck, Andreas Stelzer and Robert Weigel

Abstract – In this paper a complete hard- and software designed ultra-wideband (UWB) ground penetrating radar (GPR) for antipersonnel mine (APM) detection is presented. The system concept is based on transmitting sub-nanosecond pulses to achieve the required high resolution and material penetration for the landmine detection purpose. To enable reliable detection and classification of APMs, an adaptive ground clutter removal (AGCR) algorithm and an impulse response (IR) based characterization filter function is presented. The performance of the proposed pulsebased UWB GPR unit and the used signal processing algorithms are evaluated by real APM measurements.