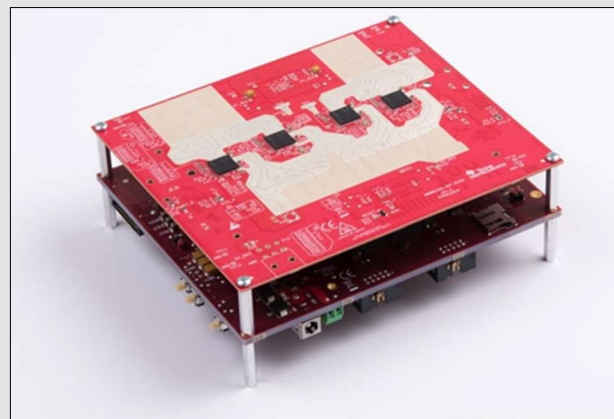


# PROJECT WATCHEDGE

The WatchEDGE project aims to establish a geographically distributed infrastructure to enhance surveillance in rural environments, addressing threats such as wild animals, wildfires, and invasive species. Recognizing that rural areas often comprise fragmented properties owned by different stakeholders, WatchEDGE proposes a shared monitoring system that benefits the entire community. Individual efforts, while effective locally, fail to account for regional scale threats, such as roaming wildlife crossing property boundaries.

The project envisions leveraging existing technological resources (e.g. trail cameras, UAV-mounted cameras, radar, local networks, and servers) already available to individual property owners. By integrating these into a unified system, WatchEDGE aims to deliver advanced monitoring capabilities at a sustainable cost. Central to the initiative is the application of Artificial Intelligence (AI) and Vision Computing (VC) for real-time identification and classification, providing essential situational awareness. The activities carried out by RaSS Laboratory regarding this project over this year focused on analyzing clutter cancellation techniques in outdoor environments to enhance the detection performance of wild animals. In this context, the TI MMWCAS-DSP-EVM radar was used as a reference, and a preliminary measurement campaign was conducted at Parco San Rossore in Pisa.



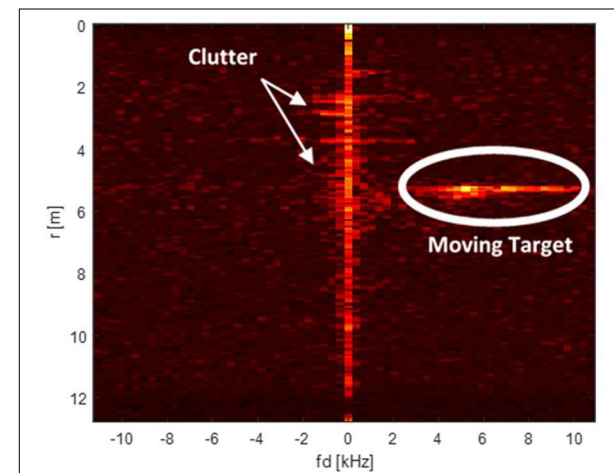
(a) TI MMWCAS-DSP-EVM Evaluation Board used during the measurement campaign



(b) Instruments set-up in Parco San Rossore



(c) Measurements validation in Parco San Rossore



(d) Range-Doppler map of a moving human target within clutter during the measurement campaign.

Wide-area Agile and flying neTwork arCHitecture for AI-surveillance processing at the EDGE - RESTART

Keywords: Digital array processing, Radar for agriculture, Animal Detection, Wild-Area Surveillance.



Technical Sheet
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