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the OSI Operation by Employing Drone Mounted Aerial Gamma Monitoring System

Mapping of radionuclide contamination in a large area to search for radionuclides of interest for an OSI may be undertaken by several methods, the mapping for covering area of about 1000 km2 will need several days of helicopter operation and longer days for ground operations. The use of drone (unmanned aerial vehicle)-mounted gamma monitoring system may give some advantages of saving a lot of time and resources including more rapid of preparation and operation, fewer operators, better access coverage area that cannot be reached by conventional ground-based operation, more flexible adjustment of flight speed and altitude compared to helicopter, better detection efficiency due to the shorter distance to the ground and more detailed coverage area compared to aerial-based operation, and others. We propose a prototype of drone-mounted gamma monitoring system that consists of a lightweight gamma detector equivalent to one inch of NaI(Tl) in efficiency with a simpler pulse processing system, a GPS, a lightweight smart phone size battery, a video camera and a data acquisition and telemetry system for collecting data of radiation level, position coordinates and visual data location and IOT-based real-time sending using wireless communicator to a receiver station located in base-camp or field inspection area.

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