Trolley Scan (Pty) Ltd

TROLLEYPONDER/ECOTAG/RADAR RFID Newsletter #103

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Your latest copy of our regular newsletter keeping you up to date with developments.

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1. Using RFID to mark safe routes through landmines for vehicles - request from United Nations

The following is an extract from the 38 page RFP:

The United Nations (UNOPS) has issued a Request for proposal (RFP) and plans to procure Radio Frequency Identification (RFID) equipment to demarcate roads and allow vehicles to automatically follow such markers.

The border between Sudan and South Sudan is estimated to be approximately 2200 km long and according to the UNISFA mandate, the UNISFA is to establish and patrol this border together with National Monitors from both Sudan and South Sudan. The border has never been physically marked or if marking had been done before, it would have been done during the colonial occupation of Sudan.

CURRENT MARKING SYSTEMS IN USE BY UNMAS
The UNMAS marking methods as prescribed in the International Mine Action Standards makes provision for a series of marking systems to be utilised when marking a cleared area prior to handing it over to the relevant authorities or the end user.
These systems include the following:
a. Visual Reference Points
b. Visual constructed Bench Marks
c. Visual and sub-surface Starting Points
d. Visual and sub-surface Turning Points
e. Visual and subsurface Intermediate Points
f. Sub-surface marking by insertion of metal rods in ground to be located with a metal detector at all above mentioned Points
g. Accurate mapping of area

In addition, the above-mentioned points are linked on maps with the relevant distances and compass bearings between them. The coordinates of these points are also recorded either with handheld Global Positioning System (GPS) or for more accuracy, a Differential Global Positioning System (DGPS).

Over the years, marking systems within the Mine Action environment has been problematic and sustainability of marking has been subjected to the following factors:

A. Climatic conditions: Extreme weather conditions, such as high temperatures reduce the durability of visual markers. Painted pickets, rocks, barrier tape etc. are eroded by extreme temperatures, wind and rain and therefore lose the ability to be utilised as visual marker over a short period of time. Rain and floods also wash away marking over a period of time.

B. Theft: Theft is one of the biggest problems experienced with the marking of cleared or hazardous marking, especially in under-developed areas. Theft occurs when the marking materials have a monetary value, a use as a souvenir (for example mine warning signs) or as in many instances children use material from marking systems to be utilised in making toys. When hazardous areas are being fenced off with metal barbed wire, these wires are sought after for farmers' fences and safekeeping of cattle for example.

C. Bush Fires: In rural areas in the country, bush fires are seasonal occurrences. Prior to rainy seasons, local population such as cattle herders, farmers etc. will burn vast areas to ensure better grazing after the onset of the first rains. The fires are normally uncontrolled and burn and destroy any visual marking. Those type of marking that is not destroyed, are normally burnt to such a state that it is unrecognisable.

D. Intentional removal of marking: In areas where there are political differences, armed conflict or other unresolved land issues between the population, removal of any marking of hazardous or clearance marking can occur. Furthermore, is can also be removed by groups to deter opposition groups to enter an area and therefore create doubt in the opposition group as to the exact location of hazardous areas.

Until such time as there is well established routes or constructed roads, the identification of exact tracks or areas cleared by UNMAS will be problematic, especially after marking has deteriorated or been destroyed by mentioned factors including rain, theft etc.

Navigation by normal handheld GPS as well as DGPS by unqualified persons can be a tedious task and increases the risk of entering hazardous or dangerous areas. The use of DGPS is also very expensive, brought about by licencing fees, equipment and training. In addition, due to the periodic rotation of military personnel within the JBVMM Mission, local knowledge of the Area of Operations is also lost.

Objective
During research to find a sustainable and cost effective solution to the described marking problems, UNMAS concluded that utilisation of Radio Frequency Identification Service (RFID) will be the best way to the unique environment and challenges in demarcating the border and cleared areas within the border.

As RFID is an established and proven commercial technology, UNOPS (UNMAS/UNISFA) has the requirement to procure existing RFID technology and equipment that can be adapted in a cost effective way to be utilised in the UNMAS/UNISFA programme for the demarcation of the border area between Sudan and South Sudan. The successful company will provide the

technology, equipment and the training for the implementation of the initial stage of the programme.

Phase 1:
The estimated length of the route for the phase I of this project is 100 km, which will be a combination of gravel roads, as well as extreme off road bush paths. The bidders will determine the quantity and the type of equipment necessary to cover the total length of the route. At the Phase 1, it is estimated that five (5) Radio Frequency Readers (scanners) will be sufficient to carry out the task. The scanners should easily locate these buried tags. Bidders should be able to guide the right location where tags are needed. The Reader will have a LED/LCD or a similar display screen, which will indicate to the driver/patrol that they are following the route accurately while in motion at the estimated speed of 40 km per hour

Phase 2
Planned to extend the coverage to 1000 km.

Comment
The above RFP was received from UNOPS by Trolley Scan on the 18th December 2015. We are one of the companies that were approached by the UNOPS about the concept.

Depending on the operating frequency and factors such as water content, RFID energy does penetrate the ground and allow buried transponders to be located with a reader.

One regular application of this approach is in locating the manholes for buried trunk fibreoptic cables. In these situations the cables and the access manholes are covered with soil after installation. The manhole covers are tagged with RFID transponders and in the event of maintenance being needed, the technician uses an RFID reader to locate the transponder and hence the manhole which can then be uncovered providing access.

Passive transponders would most probably be needed top be protected by suitable packaging and buried in the roadway. The lead vehicle in the convoy would have a reader system which would detect the transponder and provide identity and tracking information to the vehicle providing location information and guidance.

In a similar project Trolley Scan provide systems for unmanned trains that continuously read transponders along the track to control their speed and provide location information for command and control.

"*This application could be one of the largest unconventional consumers of RFID todate.*"

Want more info.
If you contact Mike Marsh at Trolley Scan we can provide you with a copy of the RFP from UNOPS. The closing date is in a couple of weeks.

2. Product range
Trolley Scan are a manufacturer of UHF RFID systems. Trolley Scan manufacture fixed readers, portable readers and RFID-radar systems (Real Time Locating systems that give accurate position information) as well as a variety of transponders for different applications. Transponders come in the form of passive transponders with operating ranges up to 20 metres and battery assisted transponders with an operating range up to 40 metres. Trolley Scan also combine some of these components into packages for end users which are supplied with the appropriate software. Typical applications are asset management, notebook tracking, equipment barriers, store control, sheep and cattle tracking, event logging and sports timing systems.

Trolley Scan have been delivering their RFID solutions for the past 16 years and offer full support for all their equipment.

3. Getting your own complete RFID/radar system

You can order RFID systems or RFID-radar systems from Trolleyscan.com
Trolley Scan provide small RFID reader systems which give new users the ability to evaluate UHF RFID and their applications without needing specialised skills.

Trolley Scan provide a variety of easy starter systems for first time users who have an application that needs a solution. Typical packages are :
? Standard UHF long range readers with antennas and 100 transponders
? RFID-radar system comprising long range reader, antennas and a variety of different transponders.
? RFID-asset tracking systems comprising portable reader, antenna and a variety of transponders with software.
? RFID-notebook/laptop tracking system comprising reader, antennas, transponders and software

In addition components such as readers and transponders are available
These systems are already operating in 52 countries.
To find out details of the systems and to order see http://trolleyscan.com/