Grupul pentru Reformă şi Alternativă Universitară
Pagina web : www.graur.org Fondata in 2004 la Cluj Napoca. Nr.19643/2407/A/2004 din RN al ONG-urilor al Min. Justiţiei Romania, 400424 Cluj-Napoca // str.Dostoievski nr.26 E-mail: office@graur.org

Asociaţia Grupul pentru Reformă şi Alternativă Universitară (GRAUR)
Cluj-Napoca
Indexul Operelor Plagiate în România
www.plagiate.ro

Decizie de indexare a faptei de plagiat la poziţia 00417 / 06.02.2018 şi pentru admitere la publicare în volum tipărit

care se bazează pe:

A. Nota de constatare şi confirmare a indiciilor de plagiat prin fişa suspiciunii inclusă în decizie.

Fişa suspiciunii de plagiat / Sheet of plagiarism's suspicion		
Opera suspicionată (OS) **Suspicious work**		**Opera autentică (OA)** **Authentic work**
OS	POPA Valentin, COCA Eugen and DIMIAN Mihai. Applications of RFID Systems - Localization and Speed Measurement. In: *Radio Frequency Identification Fundamentals and Applications Bringing Research to Practice*. InTech, 2010. pp. 113-130. ISBN 978-953-7619-73-2.	
OA	COCA Eugen and POPA Valentin. Experimental results and EMC considerations on RFID location systems. In: *RFID Eurasia, 2007 1st Annual*. IEEE, 2007. p. 1-5.	
Incidenţa minimă a suspiciunii / Minimum incidence of suspicion		
P01:	p.113:02 – p.113:08	Abstract:01 – Abstract:08
P02:	p.113:30 – 114:34	p.2:13d – p.2:18s
P03:	p.117:02 – p.119:07	p.2:42s – p.2:04d
P04:	p.118:Fig.7	p.2: Figure.1
Fişa întocmită pentru includerea suspiciunii în Indexul Operelor Plagiate în România de la Sheet drawn up for including the suspicion in the Index of Plagiarized Works in Romania at www.plagiate.ro		

Notă: Prin „p.72:00" se înţelege paragraful care se termină la finele pag.72. Notaţia „p.00:00" semnifică până la ultima pagină a capitolului curent, în întregime de la punctul iniţial al preluării.

Note: By „p.72:00" one understands the text ending with the end of the page 72. By „p.00:00" one understands the taking over from the initial point till the last page of the current chapter, entirely.

B. Fişa de argumentare a calificării de plagiat alăturată, fişă care la rândul său este parte a deciziei.

Echipa Indexului Operelor Plagiate în România

Fişa de argumentare a calificării

Nr. crt.	Descrierea situaţiei care este încadrată drept plagiat	Se confirmă
1.	Preluarea identică a unor pasaje (piese de creaţie de tip text) dintr-o operă autentică publicată, fără precizarea întinderii şi menţionarea provenienţei şi însuşirea acestora într-o lucrare ulterioară celei autentice.	✓
2.	Preluarea a unor pasaje (piese de creaţie de tip text) dintr-o operă autentică publicată, care sunt rezumate ale unor opere anterioare operei autentice, fără precizarea întinderii şi menţionarea provenienţei şi însuşirea acestora într-o lucrare ulterioară celei autentice.	
3.	Preluarea identică a unor figuri (piese de creaţie de tip grafic) dintr-o operă autentică publicată, fără menţionarea provenienţei şi însuşirea acestora într-o lucrare ulterioară celei autentice.	
4.	Preluarea identică a unor tabele (piese de creaţie de tip structură de informaţie) dintr-o operă autentică publicată, fără menţionarea provenienţei şi însuşirea acestora într-o lucrare ulterioară celei autentice.	
5.	Republicarea unei opere anterioare publicate, prin includerea unui nou autor sau de noi autori fără contribuţie explicită în lista de autori	✓
6.	Republicarea unei opere anterioare publicate, prin excluderea unui autor sau a unor autori din lista iniţială de autori.	
7.	Preluarea identică de pasaje (piese de creaţie) dintr-o operă autentică publicată, fără precizarea întinderii şi menţionarea provenienţei, fără nici o intervenţie personală care să justifice exemplificarea sau critica prin aportul creator al autorului care preia şi însuşirea acestora într-o lucrare ulterioară celei autentice.	✓
8.	Preluarea identică de figuri sau reprezentări grafice (piese de creaţie de tip grafic) dintr-o operă autentică publicată, fără menţionarea provenienţei, fără nici o intervenţie care să justifice exemplificarea sau critica prin aportul creator al autorului care preia şi însuşirea acestora într-o lucrare ulterioară celei autentice.	
9.	Preluarea identică de tabele (piese de creaţie de tip structură de informaţie) dintr-o operă autentică publicată, fără menţionarea provenienţei, fără nici o intervenţie care să justifice exemplificarea sau critica prin aportul creator al autorului care preia şi însuşirea acestora într-o lucrare ulterioară celei autentice.	✓
10.	Preluarea identică a unor fragmente de demonstraţie sau de deducere a unor relaţii matematice care nu se justifică în regăsirea unei relaţii matematice finale necesare aplicării efective dintr-o operă autentică publicată, fără menţionarea provenienţei, fără nici o intervenţie care să justifice exemplificarea sau critica prin aportul creator al autorului care preia şi însuşirea acestora într-o lucrare ulterioară celei autentice.	
11.	Preluarea identică a textului (piese de creaţie de tip text) unei lucrări publicate anterior sau simultan, cu acelaşi titlu sau cu titlu similar, de un acelaşi autor / un acelaşi grup de autori în publicaţii sau edituri diferite.	
12.	Preluarea identică de pasaje (piese de creaţie de tip text) ale unui cuvânt înainte sau ale unei prefeţe care se referă la două opere, diferite, publicate în două momente diferite de timp.	

Notă:

a) Prin „provenienţă" se înţelege informaţia din care se pot identifica cel puţin numele autorului / autorilor, titlul operei, anul apariţiei.

b) Plagiatul este definit prin textul legii[1].

> „ …*plagiatul – expunerea într-o operă scrisă sau o comunicare orală, inclusiv în format electronic, a unor texte, idei, demonstraţii, date, ipoteze, teorii, rezultate ori metode ştiinţifice extrase din opere scrise, inclusiv în format electronic, ale altor autori, fără a menţiona acest lucru şi fără a face trimitere la operele originale*…".

Tehnic, plagiatul are la bază conceptul de **piesă de creaţie** care[2]:

> *„…este un element de comunicare prezentat în formă scrisă, ca text, imagine sau combinat, care posedă un subiect, o organizare sau o construcţie logică şi de argumentare care presupune nişte premise, un raţionament şi o concluzie. Piesa de creaţie presupune în mod necesar o formă de exprimare specifică unei persoane. Piesa de creaţie se poate asocia cu întreaga operă autentică sau cu o parte a acesteia…"*

cu care se poate face identificarea operei plagiate sau suspicionate de plagiat[3]:

> *„…O operă de creaţie se găseşte în poziţia de operă plagiată sau operă suspicionată de plagiat în raport cu o altă operă considerată autentică dacă:*
> *i) Cele două opere tratează acelaşi subiect sau subiecte înrudite.*
> *ii) Opera autentică a fost făcută publică anterior operei suspicionate.*
> *iii) Cele două opere conţin piese de creaţie identificabile comune care posedă, fiecare în parte, un subiect şi o formă de prezentare bine definită.*
> *iv) Pentru piesele de creaţie comune, adică prezente în opera autentică şi în opera suspicionată, nu există o menţionare explicită a provenienţei. Menţionarea provenienţei se face printr-o citare care permite identificarea piesei de creaţie preluate din opera autentică.*
> *v) Simpla menţionare a titlului unei opere autentice într-un capitol de bibliografie sau similar acestuia fără delimitarea întinderii preluării nu este de natură să evite punerea în discuţie a suspiciunii de plagiat.*
> *vi) Piesele de creaţie preluate din opera autentică se utilizează la construcţii realizate prin juxtapunere fără ca acestea să fie tratate de autorul operei suspicionate prin poziţia sa explicită.*
> *vii) In opera suspicionată se identifică un fir sau mai multe fire logice de argumentare şi tratare care leagă aceleaşi premise cu aceleaşi concluzii ca în opera autentică…"*

---

[1] Legea nr. 206/2004 privind buna conduită în cercetarea ştiinţifică, dezvoltarea tehnologică şi inovare, publicată în Monitorul Oficial al României, Partea I, nr. 505 din 4 iunie 2004

[2] ISOC, D. *Ghid de acţiune împotriva plagiatului: bună-conduită, prevenire, combatere*. Cluj-Napoca: Ecou Transilvan, 2012.

[3] ISOC, D. *Prevenitor de plagiat*. Cluj-Napoca: Ecou Transilvan, 2014.

Experimental results and EMC considerations on RFID location systems

Eugen COCA and Valentin POPA
University "Stefan cel Mare" of Suceava, Department of Electrical Engineering and Computer Science
13, Universitatii Street, Suceava, 720229 ROMANIA
{eugen.coca, valentin.popa}@usv.ro

***Abstract*-Many efforts where made in the last years in order to develop new techniques for mobile objects identification, location and tracking. Radio Frequency Identification (RFID) systems are a possible solution to this problem. There are many different practical implementations of such systems, based on the use of radio waves from low frequencies to high frequencies. In this paper we present a short review of existing RFID systems, and an in depth analysis of one commercial system, the RFID RADAR. The results are from experiments performed in real life conditions. Also, this paper offers important EMC information regarding the use of high frequency RFID system.**

I. Introduction

Radio Frequency Identification (RFID) Systems are based on radio frequency (RF) tags and RF readers. Tags are made up around a microchip containing a small memory. Modern tags have memory capacities of several tens of kilobits or more. RF readers are microprocessor based systems.

RFID systems may be divided in two main categories: passive and active. In passive systems the power supply needed by the tags is assured by a small antenna, located near the chip. This antenna captures the RF energy from the reader and uses it to power the logic circuits. Active systems use tags with on-board batteries power sources and can support more sophisticated electronics with more data storage capacity, data processing capabilities and / or interfaces to external sensors.

Many applications require precise location information for objects or persons.

II. RFID location systems

Location of mobile objects becomes of great interest in the last years and will be in the period to come. There are many applications where precise positioning information is desired: goods and assets management, supply chain management, point of interest (POIs), proximity services, navigation and routing inside buildings, emergency services as defined by the E911 recommendations in North America and EU countries, etc.

There are numerous outdoor solutions, based mainly on GPS but there are also so-called inertial systems (INS). Solution based on cellular phone networks signals are another good example of outdoor positioning service. For GPS based solution the precision of location is dictated by a sum of factors, almost all of them out of user control. Inertial systems can provide continuous position, velocity and orientation data that are accurate for short time intervals but are affected by drift due to sensors noise [1], [2]. For indoor environments the outdoor solutions are, in most of the practical situations, not applicable. The main reason is that the received signal, affected by multiple path reflections, absorptions and diffusion, is too weak to provide accurate location information. This introduces difficulties to use positioning techniques applied in cellular networks (time of arrival, angle of arrival, observed time reference, etc.) in order to provide accurate location information inside buildings or isolate areas.

Indoor positioning systems should provide the accuracy desired by the context-aware applications that will be installed in that area. There are three main techniques used to provide location information: triangulation, scene analysis and proximity [3, 4, 5, and 6]. These three techniques may be used separately or jointly.

Indoor positioning systems may be divided into three main categories. First of all there are systems using specialized infrastructure, different from other wireless data communication networks. Second, there are systems based on wireless communication networks, using the same infrastructure and signals in order to obtain the location information. Third, there are mixed system, that use both wireless networks signals and another sources to achieve the goal.

There are many implementations, we mention here several of them having something new in technology and / or the implementation comparing with previous systems [6, 7, 8, 9, 10, 11, 12, 13, 14, and 15]:

- Active Badge is a proximity system that uses infrared emission of small badges mounted on the moving objects. A central server receives the signals and provides location information as the positions of the receivers are known;
- Cricket system from MIT which is based on "beacons" transmitting an RF signal and an ultrasound wave to a receiver attached to the moving object. The receiver estimates the it's position by listening to the emissions of the beacons based on the difference of arrival time between the RF signal and the ultrasound wave;
- MotionStar is a magnetic tracker system which use electromagnetic sensors to provide position information;

- MSR Easy Living uses computer vision techniques to recognize and locate objects in 3D;
- MSR Radar uses both triangulation based on the attenuation of the RF signal received and scene analysis;
- Pinpoint 3D-iD which uses the time-of-flight techniques for RF emitted and received signals to provide position information;
- Pseudolites are devices emulating the GPS satellite signals for indoor positioning;
- RFID Radar which used RF signals
- SmartFloor utilizes pressure sensors integrated in the floor. The difference of pressure created by a person movement in the room is analyzed and transmitted to a server which provides the position of that person;
- SpotON is a location technology based on RF signals. The idea is to measure on the fixed receivers the strength of the RF signals emitted by the tags mounted on moving objects to be located.

III. THE RFID RADAR POSITIONING SYSTEM

The RFID Radar system used for the tests and evaluation was made by Trolley Scan [24], the version we had was the "Development version". The main unit is built around a development board from Microchip. The antenna system is composed by three patch panel antennas, one for signal generation and two for receiving the signals from the transponders. As stated in the RFID Radar handbook, the processor inside the system is able to make calculation to determine the positions of up to 50 tags in a range of 50 meters. Both RFID Radar and RFID system functions are available to the user, only one of the two selectable by software. The RFID radar measures the path length for the signals traveling from the transponder to the reader to determine the distance. By comparing the two signals the reader is able to determine the angle of arrival of the signals from the transponder. Transponders are either passive (Ecochiptag 500 μWatts transponders) or active. We used for the tests two types of active transponders Claymore long-range Ecotag and Stick long-range Ecotag and one type of passive transponder. All long-range active transponders use a Lithium battery to supply the chip.

IV. PERFORMANCE EVALUATION BASED ON EXPERIMENTAL RESULTS

We made a series of test during several days, in different environment conditions and using different positions for the tags. Before starting the measurement session the receiver itself must be calibrated using, as recommended by the producer, an active tag. The tag was positioned in the center in front of the antenna system at 9 m distance. The operation is mandatory as the cables length introduces delays in the signal path from the antenna to the receiver. We made a calibration for every site we made the measurements, in order to compensate the influence of antenna, cables and receiver positions.

For the tests we used all three types of tags provided (two type active and one passive). The batteries voltages where checked to be at the nominal value before and after every individual test in order to be sure the results where not affected by the low supply voltage. During all the tests we used a spectrum analyzer to measure the electric field strength in the test area, in a frequency interval from 75 MHz up to 3 GHz. The screen captures saved on the spectrum analyzer internal memory where downloaded in a computer after each set of tests.

For the first set of tests we used a real laboratory room, with a surface of about 165 square meters (7.5 meters x 22 meters). There where several wooden tables and chairs inside, but we did not changed their positions during the experiment. The antenna system was mounted about 1.4 meters height above the ground on a polystyrene stand, with no objects in front. All tags where placed at the same height, but their position where changed in front of the antenna. We used a notebook PC to run the control and command software.

We present only the relevant results of the tests and conclusions, very useful for future developments of this kind of location systems. For the first result presented we used two long range tags, one Claymore (at 10 meters in front of the antenna) and one Stick type (at 5 meters) - Figure 1.

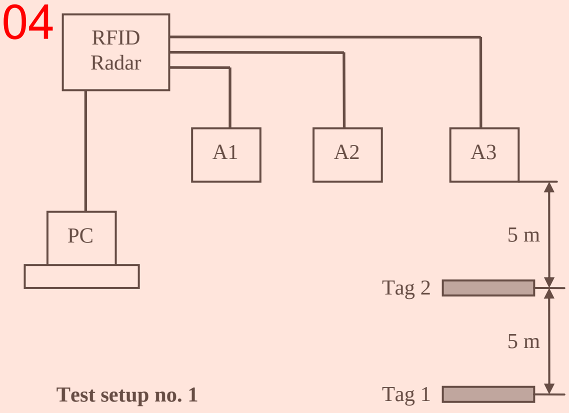

Figure 1. Test setup for distance measurement fro two tags - one at 5 m and the second at 10 m in front of the antenna

As we might see in Figure 2, the positions for each individual tag reported by the system where not enough stable in time. We run this measurement for several times using the same spatial configuration for all elements. The test presented here was made for duration of 4 hours. Analyzing the numerical results, we find out the for 65 % of cases for the tag located at 5 meters the position was reported with an error less than 10 % and for 47 % of cases the results where affected by the same error for the tag located 10 meters in front of the antenna.

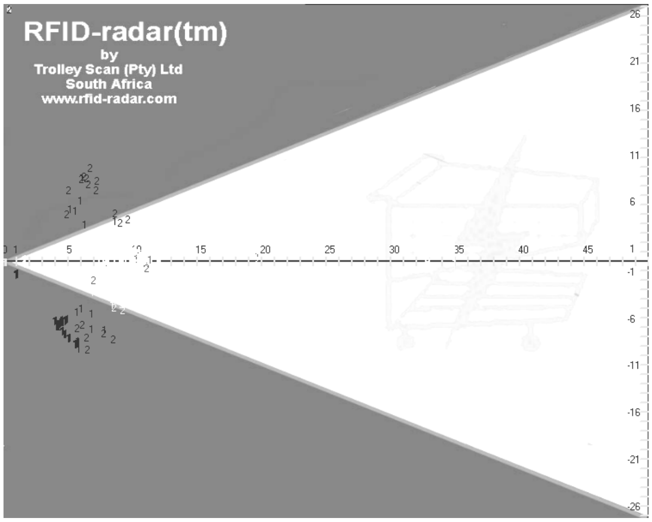

Figure 2. Results for 2 active tags placed on 5 meters and 10 meters respectively, in front of the antenna system in a room

The second setup was the same in respect of location of the measurement, but one tag was moved more in front of the antenna system, at a distance of 20 meters. The results are practically the same regarding the position dispersion. Only in about 35 % of all measurements for the tag situated at 20 meters the results where with an error less than 10 %.

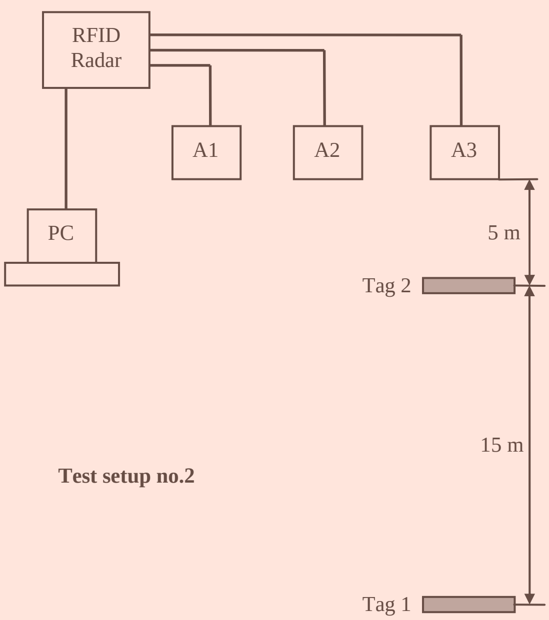

Figure 3. Test setup for distance measurement fro two tags - one at 5 m and the second at 20 m in front of the antenna

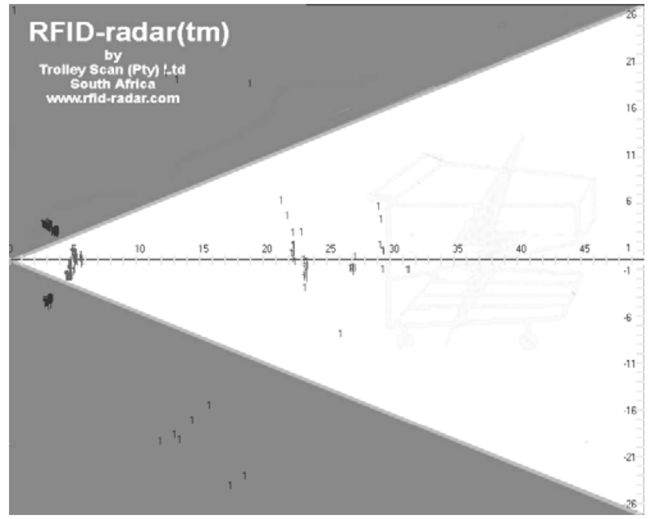

Figure 4. Results for 2 active tags placed on 5 m and 20 m respectively, in front of the antenna system in a room

The measurements for the third case presented here where made in an open area, with no obstacles between the antenna system and the tags, using a tag placed at 10 meters in from of the antenna. The results obtained (Figure 5) are much better than the results from the measurements done in the laboratory. In this case (Figure 3) about 6 % of the measured distances where affected by an error more than 10%.

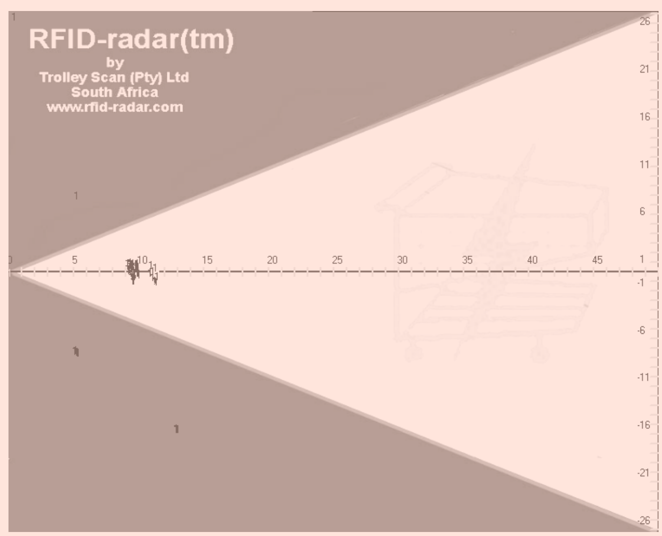

Figure 5. Results for 1 active tag placed on 10 meters in front of the antenna system in an open-area site

V. EMC MEASUREMENTS

The RFID location system is supposed to use a central frequency of 870.00 MHz with a bandwidth of 10 kHz. The frequency was chosen in order to be outside the GSM 900 band used in Europe (880.0 MHz - 915.0 MHz / 925.0 MHz - 960.0