Decizie de indexare a faptei de plagiat la poziţia
00418 / 06.02.2018
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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)	**Opera autentică (OA)**
Suspicious work	**Authentic work**
OS COCA, Eugen; POPA, Valentin. Third Generation Active RFID from the Locating Applications Perspective. In: Prof. Cornel Turcu (Ed.). *Current Trends and Challenges in RFID*. InTech, 2011. ISBN: 978-953-307-356-9. Available from: A[1]. p.455- p.476.	
OA COCA, Eugen; POPA, Valentin; BUTA, Georgiana. An indoor location system performance evaluation and electromagnetic measurements. In: *Design and Technology in Electronic Packaging (SIITME), 2010 IEEE 16th International Symposium for*. IEEE, 2010. 23-26 Sep 2010, Piteşti, Romania p. 69-72.	
Incidenţa minimă a suspiciunii / Minimum incidence of suspicion	
P01: p.455:02 – p.455:16	p.71:02s – p.71:16s
P02: p.459:32 - p.459:44	p.71:13d – p.71:30d
P03: p.465:Fig.6	p.72:Figure 1
P04: p.466:04 – p.466:12	p.72:01d - p.72:12d
P05: p.469:Table 3	p.73:TABLE I
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

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[1] www.intechopen.com/books/current-trends-and-challenges-in-rfid/thirdgeneration-active-rfid-from-the-locating-applications-perspective

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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.	✓
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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.	✓
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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.	✓
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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[2].

> „ …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[3]:

> „…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[4]:

> „…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…"

[2] 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
[3] ISOC, D. *Ghid de acţiune împotriva plagiatului: bună-conduită, prevenire, combatere*. Cluj-Napoca: Ecou Transilvan, 2012.
[4] ISOC, D. *Prevenitor de plagiat*. Cluj-Napoca: Ecou Transilvan, 2014.

Third Generation Active RFID from the Locating Applications Perspective

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1. Introduction

Location systems, both for indoor and outdoor use, are rapidly developing due to the practical need of knowing the position of objects and persons (Harrop, 2008). If for the outdoor world, the GPS system and its variants (DGPS, etc.) is the best possible solution, for indoor use, things are not yet completely solved. Indoor GPS is developing, but in parallel, other projects are running. The vast majority of papers dealing with the subject (Bess, 2009; Chang et al., 2011; Goncalo, 2009; Kathiravan et al., 2009; Khan & Antiwal, 2009; Jeon et al., 2010) present systems based on RF signal measurements. Multiple ways of solving the problem are technically imaginable, starting with those using the signals emitted by the nodes of a common WLAN / Wi−Fi wireless network (Bal et al., 2009; Clulow et al., 2006; Kaemarungsi & Krishnamurthy, 2004; Kushki et al., 2006; Kwon & Song, 2008; Tsui et al., 2010; Yousef & Agrawala, 2005), continuing with RFID systems, WSN networks and finishing with proprietary solutions derived from one of the above, where specialized nodes with one or more coordinators are deployed over the desired locating area (Bahl & Padmanabhan, 2000; Baunach et al. 2007; Chang et al. 2011; Coca et al. 2008; Dai & Su, 2008; Koyuncu & Yang, 2010).

RFID tags are the main factor of progress in identification application development. There are more than 40 year from the first generation (Finkenzeller, 2003), equipped with passive components where the energy is captured from the radio−frequency field generated by the reader, to the third generation where the energy supplied by a battery is used to power a microcontroller and one or several on−board sensors. In terms of price, in 2011 the passive tags may be found at prices as low as 0.05 USD each, whereas the active RFID tags equipped with complex sensors and low−power microcontrollers may cost as much as 100 USD a piece (Harrop, 2008).

From the point of view of RFID tag structure, the changes are obviously influenced by the progress in semiconductors technology. The software for the reader and applications evolved also on the same trend. For the Generation 1 UHF tags, manufacturers provide hardware with their own protocols. Therefore, tags from one specific manufacturer would only work with the RFID reader from the same manufacturer. From the point of view of users, this represents a major limitation and for large-scale implementations, single supplier solutions are not acceptable. Generation 2, the second-generation RFID UHF tags, developed in order to establish a standard for RFID tags, used by the big retailer inventory applications

multiple Access Points (AP) and the Received Signal Strength Indication (RSSI) information.

The signal strengths of received signals from at least three access points are used to determine the location of the object being tracked. To increase accuracy, more sophisticated methods use RF fingerprint maps that are based on calibrations of the strength of Wi-Fi signals at various points in a predefined area. Applications using Wi-Fi combined with Time Difference of Arrival (TDOA) techniques were also developed.

In an RSSI system, the distance between a tag and a reader is computer by converting the value of the signal strength at the reader into a distance measurement, based on the known signal output power at the tag and on a particular path loss model.

Wi-Fi location technique has some advantages over other systems:
-    It uses the existing infrastructure;
-    Position information is available both at the coordinator and at each node, information that could be shared with neighbor nodes.

Some major disadvantages of these systems include:
-    Signal power measurements are affected by fixed and mobile objects, thus generating random measuring errors, even a power map was created for the specified measuring area;
-    Network traffic congestions affect the system availability and the results;
-    Power consumption is higher compared to RFID or WSN solutions.

To be effective, RSSI requires a dense deployment of Access Points, which adds considerably to the systems cost. The key problem related to RSSI based systems is that an adequate path loss model must be found for both non-line-of-sight and non-stationary environments. In practice, the estimated distances are not quite precise. RSSI locating systems may also be disqualified from security applications as an attacker can easily alter the strength of received signals by amplifying or attenuating it, or by other methods distorting the signal strength received from one more Access Points used as fixed references.

The disadvantages above made the Wi-Fi locating system not to develop as rapid as other technologies did, and positioning system solutions based on it are not widely spread in the real world.

P02   RFID locating implementations were investigated and test setups are already used in real world applications both for indoor or outdoor locating services, even this technology was created as a bare code replacement. RFID systems were initially developed with the need of data storage in mind, and other aspects were not taken into consideration. Many efforts were done in order to modify RFID systems and make them suitable for indoor locating applications. A proprietary system derived from a RFID system (RFID Radar, 2005) is a good example for outdoor and indoor location, as only a small quantity of information is transmitted, the processing power being used for position estimation. One of the major disadvantages of such systems is the user is unable to modify the application or to write his own code due to copyright restriction. Communication protocol details are not always completely disclosed, so creating new system configurations could be a difficult task. In addition, the high power level used by the system makes it unsuitable for indoor location application or for populated areas (Coca et al., 2008).

The third generation RFID systems have the characteristics of a network of wireless sensors, the nodes being the tags. There are even no notable differences between the active RFID tags and WSN nodes, as both are powered from external energy sources, contain sensors and
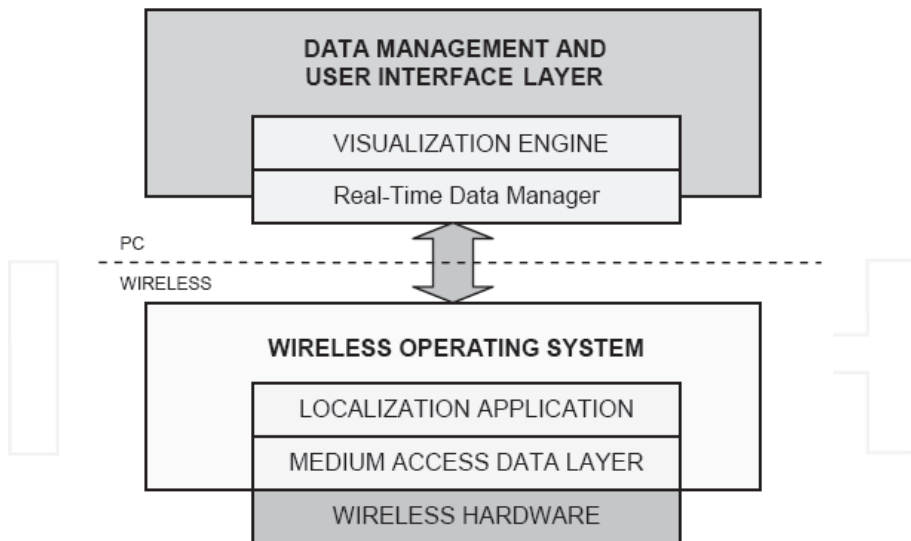
Fig. 7. Development software architecture

4.2 Test configuration

We used a dedicated LAN interface for connecting the gateway (Fig. 6) to the computer. As we already mentioned in the introduction, in WSN networks, a sensor node (Fig. 7) can have different roles, like network coordinator, router node (Full Functionality Device − FFD) and end device (Reduced Functionality Device − RFD, as described in IEEE 802.15.4 standard). The user can select the role of a WSN node, by modifying the software installed on−board.
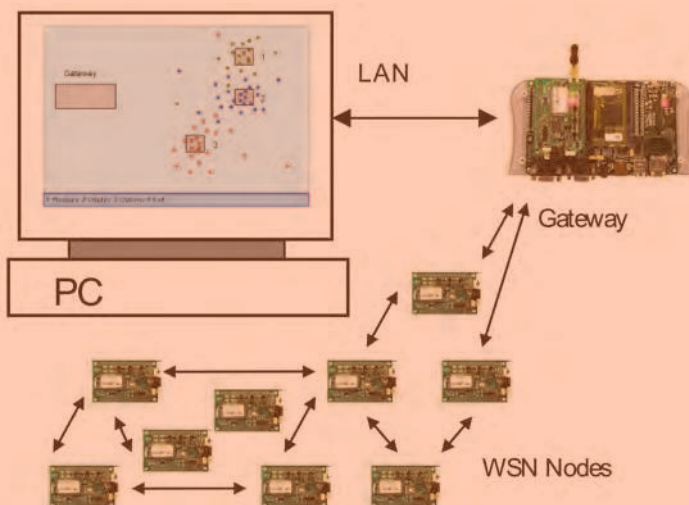

Fig. 6. WSN system overview

In our experiment, the WSN nodes were configured in FFD mode, in order to eliminate the effects of wake-up routine delay (when the node is in standby mode in order to reduce the power consumption).
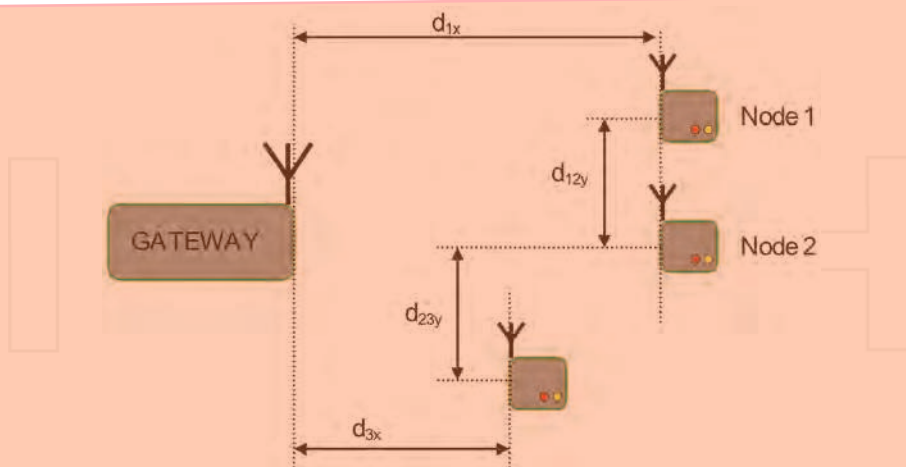

Fig. 7. Test setup with the Gateway and three WSN nodes (d_{1x}=2.5m, d_{3x}=2.2m, d_{12y}=0.4m, d_{23y}=0.8m)

P04

The control software installed on the PC communicates with the gateway and process the RSSI information transmitted by the nodes. RSSI is a relative value (between 0 and the RSSI maximum), and a conversion routine transforms it in distance.

Regarding the physical positioning of the nodes and the gateway, we used for the tests the same configuration, both for the laboratory office room and for the anechoic chamber measurements. In Fig. 7 one may see the arrangement of the coordination node (the gateway) and the WSN nodes. The nodes and the gateway where placed 1 m above the ground level. As shown in Fig. 7, the distances were d_{1x}=2.5m, d_{3x}=2.2m, d_{12y}=0.4m and d_{23y}=0.8m.

In Figure 8 there is a photo taken in the anechoic chamber, showing the whole setup: the three nodes at 3 meters in front of the antenna and the coordinator node behind it (presented in a detailed photo in Figure 9).

For the measurements inside the laboratory, the nodes were positioned on the same relative distances between them and the gateway node, the same as in the semi anechoic chamber test. Wood furniture, other equipments emissions and moving humans are the perturbing elements present in this setup.

4.3 Experimental measurement results

The software on the PC was developed using the information provided in the SDK kit. For connectivity between the PC and the gateway, the LAN option was the single choice, as we had to extract the data from the semi anechoic chamber without using any metal cables from outside to the inside of the room. Ethernet cooper to optical fiber converter were used for this task. For the tests in the laboratory, both the serial RS−232 and the Ethernet interfaces may be used.

For the first set of measurements, we used a standard laboratory room with furniture, chairs and moving humans. In addition, there were nearby emissions from two WLAN access points and other personal communication devices (mobile phones, PDAs, laptops, etc.).

The graphical representation of the positions of the three nodes in Fig. 10 shows us a great dispersion of the computed values.

For the second set of measurements, we used the same setup in terms of gateway and nodes positions and distances, but the equipments were positioned in the semi anechoic chamber, with virtually zero emissions from the outside world (noise floor at less than 120 dBm) and no furniture or humans present. The link between the computer and the gateway was made by using a pair of fiber optic to Ethernet converters. The graphical representation of the positions of the nodes is presented in Fig. 11.

Laboratory Room	Distances			
	d1x	d3x	d12y	d23y
Real distance (m)	2.50	2.20	0.4	0.8
Average value (m)	2.24	2.19	0.38	0.82
Max/Min value (m)	2.80/1.95	2.65/1.85	0.65/0.10	1.25/0.45
Standard deviation	0.39	0.29	0.24	0.26

Table 3. Results from the laboratory room measurements

Numerical results for both situations are summarized in Table 3 and Table 4. The results from the laboratory room setup show a great dispersion of the values for all distances. Despite this, the average values calculated for the distances between the nodes are quite good, with very small errors, while instantaneous ones may lead to wrong conclusions (Fig. 11). For larger distances, the standard deviation is greater, indicating the reflections on the walls and objects, and the presence of electromagnetic field emitting devices have a big influence on the results.

Anechoic Chamber	Distances			
	d1x	d3x	d12y	d23y
Real distance (m)	2.50	2.20	0.4	0.8
Average value (m)	2.42	2.20	0.39	0.81
Max/Min value (m)	2.65/2.20	2.45/1.95	0.60/0.15	1.05/0.55
Standard deviation	0.09	0.14	0.12	0.07

Table 4. Results from the anechoic chamber measurements

The influence of external electromagnetic fields from wireless devices operating in the 2.4 GHz band could not be neglected, and the results from the open area measurements are relevant in this direction.

The results obtained in the anechoic chamber are much better, the average values being closer to the real distances between the nodes. In addition, the standard deviations are smaller, meaning one single measurement have a better chance to be near the real value than in the previous case.

4.4 Electromagnetic field measurements

In order to estimate the emission level of a single WSN node, we measured it in an isolated environment. The measurements have been done in a 3m TDK semi anechoic chamber using