

**IEEE**  
 Institute of Electrical and Electronics Engineers  
 3145 Taylor Drive, Piscataway, NJ 08854-4141  
 1-800-654-6246

**IEEE**  
 Dürnyös elektronika és  
 villamosmérnöki tudományok  
 és technológiák nemzetközi  
 szervezetének tagjai lehetnek  
 az országok, a vállalatok, a  
 tudományos intézmények,  
 a szakmai egyesületek és  
 az egyének.

**IEEE**  
 International  
 Electrotechnical  
 Commission

**IEEE**  
 Institute of Electrical and  
 Electronics Engineers  
 3145 Taylor Drive  
 Piscataway, NJ 08854-4141  
 1-800-654-6246

**IEEE**  
 Institute of Electrical and  
 Electronics Engineers  
 3145 Taylor Drive  
 Piscataway, NJ 08854-4141  
 1-800-654-6246



**IEEE**  
 Institute of Electrical and  
 Electronics Engineers  
 3145 Taylor Drive  
 Piscataway, NJ 08854-4141  
 1-800-654-6246



**IEEE**  
 Institute of Electrical and  
 Electronics Engineers  
 3145 Taylor Drive  
 Piscataway, NJ 08854-4141  
 1-800-654-6246





**IEEE**



Online  
Bilgi

Tanıtım ve Kullanım Kılavuzu

**Digital Library**

# IEEE

(Institute of Electrical and Electronics Engineers)

**IEEE**, teknolojinin ilerlemesinde rol üstlenen önder bir birliktir. Dünyanın en büyük mesleki ve teknik örgütüdür. **IEEE**, yüksek atıflı yayınları, konferansları, teknoloji standartları ve mesleki ve eğitsel faaliyetleri ile küresel bir topluluktur.



# IEEE

Dünyada elektrik ve elektronik mühendisliđi, bilgisayar ve ilişkili bütün konularda yapılan bilimsel yayının %30'undan fazlası **IEEE** yayınlarına dahildir.



# IEEE Xplore Digital Library

**IEEE Digital Library** sadece elektrik mühendisliđi ve bilgisayar bilimleri deđil, bütün teknoloji alanlarında yayın içermekte ve içerik geliřtirmektedir;

- Havacılık ve Uzay
- Antenler
- Biyomedikal Mühendisliđi
- Biyometri
- Devreler
- İletişim
- Elektrik Mühendisliđi
- Enerji
- Endüstri Mühendisliđi
- Bilgi Teknolojisi
- Nanoteknoloji
- Nükleer Bilim
- Optik
- Güç
- Radyoloji
- Uzaktan Algılama
- Güvenlik
- Yazılım
- Taşıma
- Kablosuz Ağ

# IEEE Xplore Digital Library

- 3 milyondan fazla tam metin doküman
- PDF ve HTML formatlarında (eğer mevcutsa) taranabilir kaynaklar
- 1.4 milyondan fazla yazar (Türkiye,7000'den fazla)
- 174 dergi
- Bell Labs Technical Dergilerine erişim
- 1200+ konferans bildirisi
- 20+ VDE (Verband der Elektrotechnik Informationstechnik) Konferans Bildirileri
- 2,800+ IEEE standartı ve Draft Standartlar
- 300'den fazla eğitim kursu
- Her ay eklenen yaklaşık 25.000 doküman
- INSPEC® abstick/atıf ve bibliyografik kayıtları
- Ücretsiz e-posta uyarıları



# IEEE Xplore Digital Library

**IEEE**, alanlarında etki faktörleri en yüksek **dergilerden oluşur!**

( Etki faktörü: Objektif ve sistematik bir şekilde değerlendirilmiş dünyanın önde gelen dergilerinin, etki değerlerini sağlayan istatistiki bir veridir. )

**IEEE Konferansları**, mikroelektronik ve mikrodalgalardan, sensörler ve güvenliğe kadar mühendislikle ilgili konuları kapsamakta olup IEEE üyelerinin teknik alanlarındaki derinliklerini ve bilgilerinin enginliğini yansıtmaktadır!

**IEEE Standartları**, 3000 civarında etkin ve 300'den fazla geliştirilme aşamasında (draft) olan standartları içeren bir portföye sahiptir!

# IEEE ansayfasından ( <http://www.ieee.org> ) 'IEEE Xplore Digital Library'ye erişebilirsiniz...



IEEE.org | **IEEE Xplore Digital Library** | IEEE Standards | IEEE Spectrum | More Sites

Cart (0) | Create Account | Sign in

**IEEE**  
Advancing Technology  
for Humanity

The world's largest professional association for the advancement of technology

About IEEE | Membership & Services | Societies & Communities | Publications & Standards | Conferences & Events | Education & Careers | Contact & Support | Sitemap

Search IEEE  **Search**

Follow: [f](#) [t](#) [in](#) [y](#) Share: [Share](#)

### IEEE/RSJ International Conference on Intelligent Robots and Systems

Showcase of the latest developments in robotics to be held in Tokyo, Japan on 3-8 Nov 2013.

- Learn more and register
- IEEE Robotics and Automation Society

#### Welcome members

**myIEEE**

IEEE members can visit myIEEE for member benefits and resources.

**Access myIEEE**

Learn more about myIEEE

#### Join/Renew IEEE or a Society

As a member of IEEE, you'll receive access to select content, product discounts, and more.

Review all member benefits

**Join** **Renew**

#### Upcoming Events

IECON 2013 - 39th Annual Conference of the IEEE Industrial

#### Technologies

IEEE Projects | IEEE Societies | IEEE Portals

IEEE.org

IEEE Xplore Digital Library

IEEE Stan



**IEEE**

*Advancing Technology  
for Humanity*

The world's largest p

**About IEEE**

**Membership &  
Services**

**So  
Co**

Search IEEE

Google™ Custom Search



**Ya da direkt bağlantıya tıklayabilirsiniz;**

**<http://ieeexplore.ieee.org/Xplore/home.jsp>**



## IEEE Digital Library Arayüzü

Arama Kutusu

Basit taramanın yanı sıra yazara ve yayına göre de aramalar yapabilirsiniz.

IEEE Xplore®  
Digital Library

Search 3.886.032 items

Enter Search Term

Home & About  
Conferences & Publications  
Education & Learning  
Journals & Magazines  
Standards  
By Topic

Advanced Search Other Search Options

### Year in Review; Top Search Terms in IEEE Xplore

In 2014, the most popular search terms and downloads in IEEE Xplore were: big data, data mining, cloud computing, internet of things, cyber security, smart grid, and next gen wireless (5G)

You can view the most popular searches and articles below

Just Published

Most Popular

Cognitive Neuroscience, Journal of  
Volume 27 Issue 1  
Jan 2015

Data mining with big data  
Xinlong Wu, Xingnan Zhu, Hong-Gang Wu, Wei Ding  
26 February 2015

Need Full-Text?  
Request a free trial to IEEE Xplore® for your organization.

Gelişmiş arama ve diğer arama seçenekleri için bu butonları kullanabilirsiniz.

Bu butonlarla ilgili içeriklerde en popüler kaynakları ve henüz yayımlanan kaynakları görebilir, içerik bağlantılarına tıklayarak doğrudan kaynağa ulaşabilirsiniz.

## Arama Kutusu

Basit taramanın  
yanı sıra yazara ve  
yayına göre de  
aramalar  
yapabilirsiniz.

The image shows the IEEE Xplore Digital Library website interface. The top navigation bar includes the IEEE Xplore logo and a 'BROWSE' dropdown menu. The search bar is labeled 'Enter Search Term' and has a 'Basic Search' button. A hand-drawn diagram at the bottom illustrates 'BIG DATA' with various associated terms and icons.

**IEEE Xplore® Digital Library**

**BROWSE** ▼

- Books & eBooks
- Conference Publications
- Education & Learning
- Journals & Magazines
- Standards
- By Topic ▼

Enter Search Term

Basic Search Author Search

**BIG DATA**

FRAMEWORK PETABYTES  
DATABASE SMART CONTENT @  
VAST USEFUL DOWNLOAD  
METADATA CONTENT  
STRUCTURED  
VOLUME

 Search

Advanced Search

Other Search Options 

## Review: Top Search IEEE Xplore

Popular search terms and downloads in IEEE Xplore  
mining, cloud computing, internet of things, cyber  
and next gen wireless (5G).

Most popular searches and articles below.

Gelişmiş arama ve  
diğer arama  
seçenekler için bu  
butonları  
kullanabilirsiniz.



# Advanced Search Options

Advanced Keyword/Phrases

Command Search

Citation Search

Preferences

## ENTER KEYWORDS OR PHRASES, SELECT FIELDS, AND SELECT OPERATORS

Note: Refresh page to reflect updated preferences.

Search :  Metadata Only  Full Text & Metadata 

in

AND  in   

AND  in   

 Add New Line

Reset All

SEARCH

▶ CONTENT FILTER

▶ PUBLISHER

▶ CONTENT TYPES

▶ PUBLICATION YEAR

SEARCH



## ENTER KEYWORDS, PHRASES, OR A BOOLEAN EXPRESSION

Note: Use the drop down lists to generate the correct Operator and Data Field Codes.

This wizard will NOT build your expression. [View examples of how to write a boolean search string](#)

Search :  Metadata Only  Full Text & Metadata

Data Fields



Operators



### SEARCH GUIDELINES

Operators need to be in all caps  
– i.e. AND/OR/NOT/NEAR.

Asterisk wildcards cannot be  
used within quotes or with the  
NEAR/ONEAR operators.

There is a maximum of 15  
search terms.

Reset All

SEARCH

Advanced Keyword/Phrases

Command Search

Citation Search

Preferences



## ENTER KEYWORDS OR PHRASES

DOI

OR

Publication Title

Document Title

Volume

Author Name

Issue

Year

Start Page

End Page

SEARCH



You can view the most popular searches and articles below.



Journals &  
Magazines

Conference  
Publications

Standards

Books &  
eBooks

Education &  
Learning

Just Published

Most Popular

Cognitive Neuroscience, Journal of  
Volume: 27 Issue: 1  
Jan. 2015

Data mining with big data  
Xindong Wu; Xingqian Zhu; Gong-Qing  
Wu; Wei Ding  
26 Haziran 2013

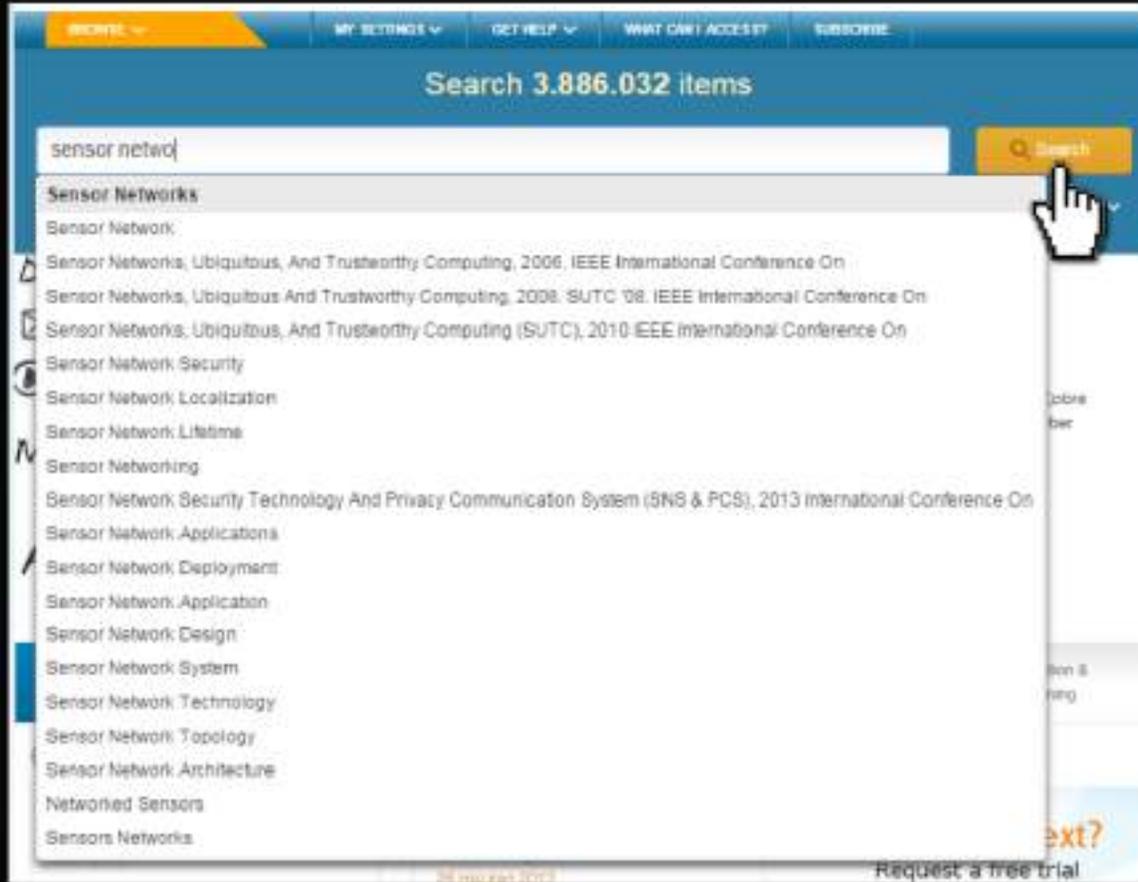
Need Full-Text?

Request a free trial  
to IEEE Xplore® for  
your organization.

Bu butonlarla ilgili içeriklerde en popüler kaynakları ve henüz yayımlanan kaynakları görebilir, içerik bağlantılarına tıklayarak doğrudan kaynağa ulaşabilirsiniz.

# Örnek bir tarama yapalım...

Aramanızı yazmaya başladığınız anda çıkan açılır menüdeki seçenekleri kullanabilirsiniz!



The screenshot displays a search engine interface with a search bar containing the text "sensor network". A dropdown menu is visible below the search bar, listing various search suggestions. The suggestions include:

- Sensor Networks
- Sensor Network
- Sensor Networks, Ubiquitous, And Trustworthy Computing, 2006. IEEE International Conference On
- Sensor Networks, Ubiquitous And Trustworthy Computing, 2008. SUTC '08. IEEE International Conference On
- Sensor Networks, Ubiquitous, And Trustworthy Computing (SUTC), 2010. IEEE International Conference On
- Sensor Network Security
- Sensor Network Localization
- Sensor Network Lifetime
- Sensor Networking
- Sensor Network Security Technology And Privacy Communication System (SNS & PCS), 2013 International Conference On
- Sensor Network Applications
- Sensor Network Deployment
- Sensor Network Application
- Sensor Network Design
- Sensor Network System
- Sensor Network Technology
- Sensor Network Topology
- Sensor Network Architecture
- Networked Sensors
- Sensors Networks

The search bar also shows "Search 3.886.032 items" and a "Search" button. A hand cursor is pointing at the search button. The interface includes navigation links like "HOME", "MY SETTINGS", "GET HELP", "WHAT CAN I ACCESS?", and "SUBSCRIBE".

# Sonuç Ekranı

Özellikle görüntülemek istediğiniz sonuçları elde etmek için bu kısma ilgili teriminizi yazabilirsiniz!

Tüm sonuçları görüntüleyebildiğiniz gibi sadece açık erişimli sonuçlara da erişebilirsiniz!

Sonuçlarınızı bu sütundaki seçeneklerle filtreleyebilirsiniz!

The screenshot shows a search results page for 'sensor networks'. The page is divided into a left sidebar for filtering and a main content area for search results. The sidebar is titled 'FILTER THESE RESULTS' and contains several sections: 'Search within results' with a search box and a 'Search' button; 'All Results' and 'Open Access Only' radio buttons; 'CONTENT TYPE' with a list of categories and counts; and 'PUBLICATION YEAR' with a range selector. The main content area is titled 'SEARCH RESULTS' and shows the search term 'sensor networks' with 77,387 results returned. It includes options for 'Results per page' (set to 25) and 'Sort by' (set to Relevance). There are also navigation links for 'Select All on Page', 'Deselect All', and a 'First' button. The search results list includes a paper titled 'Mobile Network Supported Wireless Sensor Network Services' by Krca, S.; Teiatsis, V.; Matusikova, K.; Johansson, M.; Cubic, I.; Glitho, R., published in IEEE International Conference on Mobile Adhoc and Sensor Systems, 2007. Another paper listed is 'Security topology in wireless sensor networks with routing optimisation' by Ismail, M.; Sanavullah, M.V., published in Wireless Communication and Sensor Networks, 2008.

Tüm sonuçları  
görüntüleyebildiğiniz gibi sadece  
açık erişimli sonuçlara da  
erişebilirsiniz!

Sonuçlarınızı bu  
sütundaki  
seçeneklerle  
filtreleyebilirsiniz!

The image shows a search results filter panel with several sections. The top section is titled "FILTER THESE RESULTS" and contains a search box labeled "Search within results:" with a "Search" button. Below this is a section with two radio buttons: "All Results" (selected) and "Open Access Only". The next section is "CONTENT TYPE" with a dropdown arrow and a list of categories: "Conference Publications (67,220)", "Journals & Magazines (9,581)", "Early Access Articles (317)", "Books & eBooks (236)", "Standards (29)", and "Education & Learning (4)". The final section is "PUBLICATION YEAR" with a dropdown arrow, radio buttons for "Single Year" and "Range" (selected), a range slider from 1899 to 2014, and input fields for "From: 1899" and "To: 2014". Orange arrows point from the text boxes on the left to these specific filter options.

**FILTER THESE RESULTS**

Search within results:

All Results  
 Open Access Only

**CONTENT TYPE**

- Conference Publications (67,220)
- Journals & Magazines (9,581)
- Early Access Articles (317)
- Books & eBooks (236)
- Standards (29)
- Education & Learning (4)

**PUBLICATION YEAR**

Single Year  Range

1899  2014

From:

To:

**Tüm sonuçları  
görüntüleyebildiğiniz gibi sadece  
açık erişimli sonuçlara da  
erişebilirsiniz!**

**Sonuçlarınızı bu  
sütundaki**

The image shows a search results filter panel with the following elements:

- FILTER THESE RESULTS** (Section Header)
- Search within results:** (Text label above a search input field)
- All Results** (Selected radio button)
- Open Access Only** (Unselected radio button)
- CONTENT TYPE** (Section Header)
- Conference Publications (67,220)** (Unselected checkbox)
- Journals & Magazines (9,581)** (Unselected checkbox)
- Early Access Articles (317)** (Unselected checkbox)
- Books & eBooks (236)** (Unselected checkbox)
- Standards (29)** (Unselected checkbox)

Three orange arrows point from the filter panel to the text boxes on the left: one from the 'All Results' radio button, one from the 'Open Access Only' radio button, and one from the 'CONTENT TYPE' section header.

# Sonuç



Yıldız (\*) ile sonuçların ilgili kategorilerine ekli edebilirsiniz. Örneğin "spor" sonuçları tennis, swimming, soccer ile sonuçları ve perlon ile sonuçları diğer sonuçları da gösterilebilir.



**Özellikle görüntülemek istediğiniz sonuçları elde etmek için bu kısma ilgili teriminizi yazabilirsiniz!**





**Yıldız (\*) ile terimlerin değişik varyasyonlarını elde edebilirsiniz. Örneğin "secur\*" yazarak secure, securing, security terimlerini ve yanlarına aldıkları diğer terimleri de görüntüleyebilirsiniz!**

# Sonuç Ekranı

The screenshot shows a search results page with the following elements and annotations:

- SEARCH RESULTS** box: Contains search criteria: "You searched for: **sensor networks** , **Security** (x)", "You Refined by: Content Type: **Journals & Magazines** (x)", "Publication Year: **2005 - 2013** (x)". It also shows "10 Results returned" and a "Sort by: Relevance" dropdown.
- Need Full-Text?** box: Promotes a free trial for IEEE Xplore for organizations, with a "FREE TRIAL" button.
- SEARCH HISTORY** box: States "Search History is available using your personal IEEE account."
- Annotation 1** (left): "Burdaki seçeneklerle sonuçlarınızı kişiselleştirebilirsiniz (tüm seçenekler sonuçlarınızı iznelerlemeye başladıktan sonra kullanabilirsiniz olacaktır.)" (You can personalize your results with these options (all options will be available for use after you have authorized your results).)
- Annotation 2** (right): "Sırt by: kısıtlı sonuçlar için, tüm sonuçlardan editöre, Etkin Etkinliği ya da en çok okunanlar için en iyi alanlara yerleştirilmiştir!" (Sorted by: limited results, all results from editor, Active Activity or most read areas are placed in the best places!)
- Annotation 3** (bottom left): "Kaynakça için ilgili birisi için, çok fazla, atf sayısını da görebilirsiniz!" (For the bibliography, you can see the number of references for a specific person!)
- Annotation 4** (bottom right): "Herhangi bir sonuca tıklayalım... (Bağlantıya tıklayarak sonuca ulaşabildiğiniz gibi sonuçun en altında yer alan seçenekleri de kullanabilirsiniz.)" (Let's click on any result... (By clicking the link, you can reach the result, and you can also use the options listed at the bottom of the result).)

Filtrelenen seçenekleri burda görebildiğiniz gibi, "x" işaretine tıklayarak dilediğinizi çıkarabilirsiniz!

# Sonuç Ekranı

The screenshot shows a search results page with the following elements:

- SEARCH RESULTS** header.
- Search query: **sensor networks , Security** (x).
- Refined by: **Content Type: Journals & Magazines** (x) and **Publication Year: 2005 - 2013** (x).
- 10 Results returned.
- Sort by: Relevance.
- Actions: Select All on Page, Deselect All, Get Search Alert, Download Citations, Save to Project, Email Selected Results, Print, Export Results.
- Result 1: **Guest editorial: Special issue on wireless sensor networks, cyber-physical systems, and internet of things**. Authors: Mao, XuFei ; Zhou, Chi ; He, Yuan ; Yang, Zheng ; Tang, Shaojie ; Wang, Weichao. Tsinghua Science and Technology. Volume: 16 , Issue: 6. Digital Object Identifier: 10.1016/S1007-0214(11)70074-8. Publication Year: 2011 , Page(s): 559 - 560. **TUP JOURNALS & MAGAZINES**. Quick Abstract | PDF (164 KB).

Annotations on the screenshot:

- An orange box highlights the search results summary.
- An orange arrow points from the search results summary to a blue box on the right.
- An orange arrow points from the search results summary to a blue box below the search history.
- A blue box on the left contains text: "Filtrenen seçenekler (çenекler) (çıkartıldıktan (çıkartır.)".
- A blue box on the right contains text: "Filtrelenen seçenekleri burda görebildiğiniz gibi, 'x' işaretine tıklayarak dilediğinizi çıkarabilirsiniz!".
- A blue box below the search history contains text: "Sort by: kısmıyla sonuçlarınızı; yeni sonuçlardan eskilere, A'dan Z'ye, ilgililiğe ya da en çok atıf alanlardan en az atıf alanlara şeklinde sıralayabilirsiniz!".

Filtrelenen seçenekleri burda görebildiğiniz gibi, "x" işaretine tıklayarak dilediğinizi çıkarabilirsiniz!

Sort by: kısmıyla sonuçlarınızı; yeni sonuçlardan eskilere, A'dan Z'ye, ilgililiğe ya da en çok atıf alanlardan en az atıf alanlara şeklinde sıralayabilirsiniz!

10 Results returned

FREE TRIAL

### SEARCH HISTORY

Search History is available using your personal IEEE account.

Sort by: Relevance

Email Selected Results



Print



Export Results

n wireless sensor  
ems, and internet of



Yang, Zheng ;

/S1007-

559 - 560

'sort by:' kısmıyla sonuçlarınızı; yeni sonuçlardan eskilere, A'dan Z'ye, ilgililiğe ya da en çok atıf alanlardan en az atıf alanlara şeklinde sıralayabilirsiniz!

- All Results
- Open Access Only

CONTENT TYPE

PUBLICATION YEAR

AUTHOR

AFFILIATION

PUBLICATION TITLE

PUBLISHER

Publication Year: 2000 - 2010

10 Results returned

Sort by: Relevance

Select All on Page | Deselect All



Set Search Alert



Download Citations



Save to Project



Email Selected Results



Print



Export Results

**Guest editorial: Special issue on wireless sensor networks, cyber-physical systems, and internet of things**

Mao, XuFei ; Zhou, Chi ; He, Yuan ; Yang, Zheng ; Tang, Shaojie ; Wang, Weichao  
Tsinghua Science and Technology

Volume: 16 , Issue: 6

Digital Object Identifier: 10.1016/S1007-0214(11)70074-8

Publication Year: 2011 , Page(s): 559 - 560

**TUP JOURNALS & MAGAZINES**



Quick Abstract



PDF (164 KB)

Burdaki seçeneklerle sonuçlarınızı kişiselleştirebilirsiniz! (tüm seçenek sonuçlarınızı işaretlemeye başladıktan sonra kullanılabilir olacaktır.)

Set Search Alert | Download Citations | Save to Project | Email Selected Results | Print | Export Results

**Practical Secure Communication for Integrating Wireless Sensor Networks Into the Internet of Things**

Fagen Li ; Pan Xiong  
Sensors Journal, IEEE

Volume: 13 , Issue: 10

Digital Object Identifier: 10.1109/JSEN.2013.2262271

Publication Year: 2013 , Page(s): 3677 - 3684

Kaynakla ilgili bilgilerin yer aldığı bu kısımda, eğer varsa, atıf sayısını da görebilirsiniz!

Herhan (Bağla ulaşab altında

 Set Search Alert  Download Citations  Save to Project  Email Selected Results  Print  Export Results

**Kaynakla ilgili bilgilerin yer aldığı bu kısımda, eğer varsa, atıf sayısını da**

## TUP JOURNALS & MAGAZINES

 |  Quick Abstract |  Print

### Practical Secure Communication in Wireless Sensor Networks Integrate Things

Fagen Li ; Pan Xiong  
Sensors Journal, IEEE  
Volume: 13 , Issue: 10  
Digital Object Identifier: 10.1109/SNS.2013.6611111  
Publication Year: 2013 , Page(s): 1-5  
**IEEE JOURNALS & MAGAZINES**

 |  Quick Abstract |  Print

 Set Search Alert |  Download Citations |  Save to Project |  Email Selected Results |  Print |  Export Results

Kaynakla ilgili bilgilerin yer aldığı bu kısımda, eğer varsa, atıf sayısını da görebilirsiniz!

Publication Year: 2013  
Page(s): 1-5  
Digital Object Identifier: 10.1109/SNS.2013.6611111



Publication Year: 2005

Cited by: [Papers \(2\)](#)

**IEEE JOURNALS & MAGAZINES**

 |  [Quick Abstract](#) |  [PDF \(512 KB\)](#)



## 2 Citations

[IEEE \(2\)](#)



### Cited by IEEE (2)

1. Yared, R.; Cartigny, J.; Defago, X.; Wiesmann, M. "Locality-preserving distributed path reservation protocol for asynchronous cooperative mobile robots", *Autonomous Decentralized Systems, 2007. ISADS '07. Eighth International Symposium on*, On page(s): 188 - 195

[Abstract](#) | [Full Text: PDF \(437KB\)](#)

# Citation Map

[View All References](#)

[View All Citing Documents](#)

Viewing: **A new programming model for dependable adaptive real-time applications**

## REFERENCES



1- P. Veri,ssimo et al., Cortex: Towards Supporting Autonomous and Cooperating Sentien...



2- P. Veri,ssimo and A. Casimiro, The Timely Computing Base Model and Architecture, h...



3- A. Casimiro and P. Veri,ssimo, Using the Timely Computing Base for Dependable QoS A...



4- A. Casimiro and P. Veri,ssimo, Generic Timing Fault Tolerance Using a Timely Comput...



5- M. Correia, P. Veri,ssimo, and N.F. Neves, The Design of a COTS Real-Time Distribut...



6- P. Veri,ssimo, Traveling through Wormholes: Meeting the Grand Challenge of Distribu...

## CITING DOCUMENTS

[1- Locality-preserving distributed path reservation protocol for asynchronous cooperative mob...](#)



[2- Collision prevention using group communication for asynchronous cooperative mobile robots](#)



P. Veri,ssimo et al., "Cortex: Towards Supporting Autonomous and Cooperating Sentient Entities," *Proc. European Wireless 2002 (EW 02)*, 2002, pp. 595&ndash;601.

**TUP JOURNALS & MAGAZINES**

 |  Quick Abstract |  PDF (164 KB)

**Practical Secure Communication for Integrating  
Wireless Sensor Networks Into the Internet of  
Things**

Fagen Li ; Pan Xiong

Sensors Journal, IEEE

Volume: 13 , Issue: 10

Digital Object Identifier: 10.1109/JSEN.2013.2262271

Publication Year: 2013 , Page(s): 3677 - 3684

**IEEE JOURNALS & MAGAZINES**

 |  Quick Abstract |  PDF (325 KB) |  HTML



Herhangi bir sonuca tıklayalım...  
(Bağlantıya tıklayarak sonuca ulaşabildiğiniz gibi sonucun en altında yer alan seçenekleri de kullanabilirsiniz.)

SEARCH

Author to IEEE | Advanced Search | Preferences | Search Tips | Help Search Settings

IEEE Journals & Magazines | Sensors Journal, IEEE | Volume 13 Issue 10

Open Access

Full Text as PDF

Full Text in HTML

Need Full-Text? Request a free trial to IEEE Xplore for more information.

2 References

Page 1 | *Sens. J. IEEE, Vol. 13, No. 10, Oct. 2013*

Abstract | Authors | References | Cited By | Keywords | Metrics | Similar

Download Citation | Email | Print | Share | Save to Project

Abstract

If a wireless sensor network (WSN) is integrated into the Internet as a part of the Internet of things (IoT), there will appear new *security* challenges, such as setup of a secure channel between a sensor node and an Internet host. In this paper, we propose a heterogeneous online and offline signcrypton scheme to secure communication between a sensor node and an Internet host. We prove that this scheme is indistinguishable against adaptive chosen ciphertext attacks under the bilinear Diffie-Hellman inversion problem and essential unforgeability against adaptive chosen messages attacks under the  $q$ -strong Diffie-Hellman problem in the random oracle model. Our scheme has the following advantages. First, it achieves confidentiality, integrity, authentication, and non-repudiation in a logical single step. Second, it allows a sensor node in an identity-based cryptography to send a message to an Internet host in a public key infrastructure. Third, it splits the signcrypton into two phases: i) offline phase; and ii) online phase. In the offline phase, most heavy computations are done without the knowledge of a message. In the online phase, only light computations are done when a message is available. Our scheme is very suitable to provide *security* solution for integrating WSNs into the IoT.

Published in:  
Sensors Journal, IEEE (Volume:13, Issue: 10)

Date of Publication: Oct. 2013

Page(s):  
3677 - 3684

ISBN:  
1530-437X

ISSN Accession Number:  
12147084

Digital Object Identifier:  
10.1109/JSEN.2013.2262271

Date of Publication:  
21 March 2013

Date of Current Version:  
28 August 2013

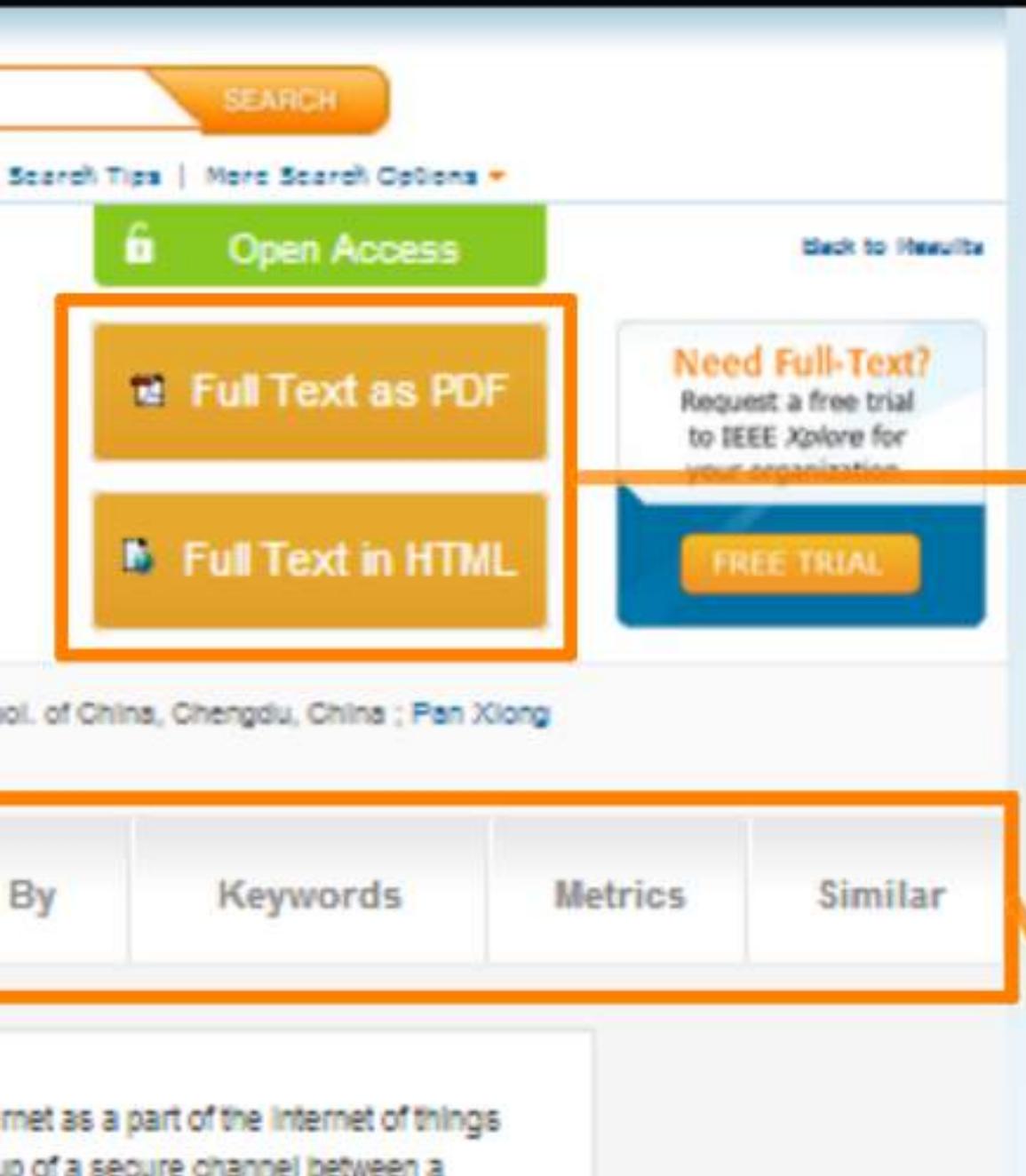
Issue Date:  
Oct. 2013

Sponsored by:  
IEEE Sensors Council

Bu sekmelerle ise atıfları indirebilir, kaynağı eMail olarak gönderebilir, yazdırabilir veya kaydedebilirsiniz!

PDF veya HTML olarak tam metin erişim sağlayabilirsiniz!

Bu kısımdaki sekmelerle kaynakla ilgili bilgilerden dilediğinizi görüntüleyebilirsiniz!



**PDF veya HTML olarak  
tam metin erişim  
sağlayabilirsiniz!**

# Practical Secure Communication for Integrating Wireless Sensor Networks Into the Internet of Things

Fagen Li and Pan Xiong

**Abstract**—If a wireless sensor network (WSN) is integrated into the Internet as a part of the Internet of things (IoT), there will appear new security challenges, such as setup of a secure channel between a sensor node and an Internet host. In this paper, we propose a heterogeneous online and offline signcryption scheme to secure communication between a sensor node and an Internet host. We prove that this scheme is indistinguishable against adaptive chosen ciphertext attacks under the bilinear Diffie-Hellman inversion problem and existential unforgeability against adaptive chosen messages attacks under the  $q$ -strong Diffie-Hellman problem in the random oracle model. Our scheme has the following advantages. First, it achieves confidentiality, integrity, authentication, and non-repudiation in a logical single step. Second, it allows a sensor node in an identity-based cryptography to send a message to an Internet host in a public key infrastructure. Third, it splits the signcryption into two phases: i) offline phase; and ii) online phase. In the offline phase, most heavy computations are done without the knowledge of a message. In the online phase, only light computations are done when a message is available. Our scheme is very suitable to provide security solution for integrating WSN into the IoT.

**Index Terms**—Wireless sensor network, Internet of things, security, signcryption, public key infrastructure, identity-based

a powerful trusted device that acts as an interface between the network user and the nodes. WSNs have many applications, including military sensing and tracking, environment monitoring, target tracking, healthcare monitoring, and so on. A user of the WSNs can read the data received from the sensors through the base station. If we hope to read the data anywhere in the world, we need to integrate the WSNs into the Internet as part of the IoT. There are three methods to accomplish this integration, front-end proxy solution, gateway solution and TCP/IP overlay solution [2]. In the front-end proxy solution, the base station acts as an interface between the WSNs and the Internet. There is no direct connection between the Internet and a sensor node. The base station parses all incoming and outgoing information. In the gateway solution, the base station acts as an application layer gateway that translates the lower layer protocols from both networks. In the TCP/IP overlay solution, sensor nodes communicate with other nodes using TCP/IP. The base station acts as a router that forwards the packets from and to the sensor nodes. In both gateway solution and TCP/IP overlay solution, the



Download PDF

This paper appears in:  
*Sensors Journal*, IEEE

Issue Date:  
Oct. 2013

On page(s):  
3677 - 3684

ISSN:  
1530-437X

INSPEC Accession Number:  
12747694

Digital Object Identifier:  
10.1109/JSEN.2013.2263271

Date of Current Version:  
2013-08-28

Date of Original Publication:  
2013-06-21

Text Size

Normal | Large

Email to a Colleague

Share

## SECTION I INTRODUCTION

JUMP

THE Internet of Things (IoT) is a novel paradigm that has received considerable attention from both academia and industry. The basic idea of IoT is the pervasive presence around us of a variety of things or objects-such as radio-frequency identification (RFID) tags, sensors, actuators, mobile phones, etc.-which, through unique addressing schemes, are able to interact with each other and cooperate with their neighbors to reach common goals [1]. Wireless sensor networks (WSNs) are ad hoc networks which usually consist of a large number of tiny sensor nodes with limited resources and one or more base stations. Usually, sensor nodes consist of a processing unit with limited computational power and limited capacity. On the other hand, the base station is a powerful trusted device that acts as an interface between the network user and the nodes. WSNs have many applications, including military sensing and tracking, environment monitoring, target tracking, healthcare monitoring, and so on. A user of the WSNs can read the data received from the sensors through the base station. If we hope to read the data anywhere in the world, we need to integrate the WSNs into the Internet as part of the IoT. There are three methods to accomplish this integration, front-end proxy solution, gateway solution and TCP/IP overlay solution [2]. In the front-end proxy solution, the base station acts as an interface between the WSNs and the Internet. There is no direct connection between the Internet and a sensor node. The base station parses all incoming and outgoing information. In the gateway solution, the base station acts as an application layer gateway that translates the lower layer protocols from both networks. In the TCP/IP overlay solution, sensor nodes communicate with other nodes using TCP/IP. The base station acts as a router that forwards the packets from and to the sensor nodes. In both gateway solution and TCP/IP overlay solution, the sensor nodes can communicate with the Internet hosts directly. However, new

Quick Preview

Figures

Full Text

Footnotes

References

Authors

Cited By

Keywords

Connections

Bu butonlarla  
kaynak içinde hızlı  
geçişler  
yapabilirsiniz!

SEARCH

Author Search | Advanced Search | Preferences | Search Tips | More Search Options

Browse Journals & Magazines | Sensors Journal, 2013 | Volume 13 Issue 10

# Practical Secure Communication for Integrating Wireless Sensor Networks Into the Internet of Things

Open Access

Full Text as PDF

Full Text in HTML

Need Full-Text? Request a free trial to IEEE Xplore for your organization. FREE TRIAL

2 Author(s) Fagen Li ; Sch. of Comput. Sci. & Eng., Univ. of Electron. Sci. & Technol. of China, Chengdu, China ; Pan Xiong

Abstract Authors References Cited By Keywords Metrics Similar

Download Options Email Print Save to Project

Full Text

0

0

0

0

Published in: Sensors Journal, IEEE (Volume:13, Issue: 10)

Date of Publication: Oct. 2013

Page(s): 3677 - 3684

ISSN :

Date of Publication : 21 Haziran 2013

Date of Current Version :



PDF veya HTML olarak tam metin erişim sağlayabilirsiniz!

Bu kısımdaki sekmelerle kaynakla ilgili bilgilerden dilediğinizi görüntüleyebilirsiniz!

**Bu sekmelerle ise atıfları  
indirebilir, kaynağı eMail olarak  
gönderebilir, yazdırabilir veya  
kaydedebilirsiniz!**



**Abstract**

- Download Citations
- Email
- Print
- Save to Project

0

0