Document details

‹ Back to results | 1 of 1

Export Download Print E-mail Save to PDF Add to List More... ›

View at Publisher

ICETAS 2019 - 2019 6th IEEE International Conference on Engineering, Technologies and Applied Sciences
December 2019, Article number 9117346
6th IEEE International Conference on Engineering, Technologies and Applied Sciences, ICETAS 2019; Kuala Lumpur; Malaysia; 20 December 2019 through 21 December 2019; Category numberCFP19N08-ART; Code 161181

Embedded LoRaWAN for Agricultural Sensing Applications (Conference Paper)

Suwaid, M.M. ✉, Habaebi, M.H. ✉, Khan, S. ✉

Fac. of Eng., International Islamic Univ. Malaysia (IIUM), Dept of Ece, Jalan Gombak, Kuala Lumpur, 53100, Malaysia

Abstract

View references (9)

Recently, the concept of the wireless sensor network in agriculture spread around the world to help farmers to enhance the productivity and quality by continuously monitoring the crops development. In contrast, the environment of farms does not assist the implementation of IoT because of the difficulty to find the power supply. Sometimes, farmers face some difficulty to track their plants because of types of the environment. For example, the desert and high temperature, and the tropical forest and rainy seasons incur harsh operating scenarios. Therefore, this work aims to create a system that helps farmers to track their crops remotely using LoRaWAN technology. The features of the system are very low power consumption and large coverage area of the signal which are the most important features suitable for farming environment. The sensors help give a very important information to farmers too. The work began with selecting the appropriate, cost-effective sensors to be deployed. Then, a design or integration was proposed for the system and the associated peripherals. The system will comprise of a LoRa node, is responsible for collecting data from the sensors, and a LoRa Gateway, that is accountable for receiving the data, to send it to The Things Network (TTN) server. So, the Arduino code will be used to program the sensor to collect data and send it to the gateway to be displayed on TTN. In addition, with the help of integration between the TTN and the Ubidots, the data can be easily analyzed and monitored from the website and the app of Ubidots. Later, the field test implemented on plant for almost one week, to demonstrated the ability of the proposed system to work. © 2019 IEEE.

SciVal Topic Prominence

Topic: Wide Area Networks | Hyaluronate Lyase | Low Power

Prominence percentile: 99.192

Author keywords

IoT | IoT in Agriculture | LoRa Wan technology | Monitoring system | Sensor | Tree monitoring system

Indexed keywords

Engineering controlled terms: Agricultural robots | Cost effectiveness | Crops | Data acquisition | Wireless sensor networks

Engineering uncontrolled terms: Cost-effective sensors | Coverage area | High temperature | Important features | Low-power consumption | Rainy seasons | Sensing applications | Tropical forest

Engineering main heading: Gateways (computer networks)

Metrics View all metrics ›

PlumX Metrics

Usage, Captures, Mentions, Social Media and Citations beyond Scopus.

Cited by 0 documents

Inform me when this document is cited in Scopus:

Set citation alert ›

Related documents

ZigBee and LoRa based Wireless Sensors for Smart Environment and IoT Applications
Ali, A.I. , Partal, S.Z. , Kepke, S. *(2019) Proceedings - 2019 IEEE 1st Global Power, Energy and Communication Conference, GPECOM 2019*

A Real-Time Bus Positioning System Based on LoRa Technology
Guan, P. , Zhang, Z. , Wei, L. *(2018) 2nd International Conference on Smart Grid and Smart Cities, ICSGSC 2018*

Body-Centric LoRa Networks Based on System-Integrated Textile SIW Antennas
Ameloot, T. , Torre, P.V. , Rogier, H. *(2020) 2020 33rd General Assembly and Scientific Symposium of the International Union of Radio Science, URSI GASS 2020*

View all related documents based on references

Find more related documents in Scopus based on:

Authors › Keywords ›

Funding details

Funding sponsor	Funding number	Acronym
International Islamic University Malaysia	PRIGS18-003-0003	IIUM

Funding text

This work was conducted at IoT and Wireless Communication Protocols Lab and is partially funded by IIUM Publication Researcch Intensified grant Scheme PRIGS18-003-0003.

ISBN: 978-172814082-7
Source Type: Conference Proceeding
Original language: English
DOI: 10.1109/ICETAS48360.2019.9117346
Document Type: Conference Paper
Publisher: Institute of Electrical and Electronics Engineers Inc.

References (9)

View in search results format ›

All | Export | Print | E-mail | Save to PDF | Create bibliography

1 Stočes, M., Vaněk, J., Masner, J., Pavlík, J.
Internet of things (IoT) in agriculture - Selected aspects (Open Access)

(2016) *Agris On-line Papers in Economics and Informatics*, 8 (1), pp. 83-88. Cited 50 times.
http://online.agris.cz/files/2016/agris_on-line_2016_1_stoces_vanek_masner_pavlik.pdf
doi: 10.7160/aol.2016.080108

View at Publisher

2 Van den Abeele, F., Haxhibeqiri, J., Moerman, I., Hoebeke, J.
Scalability analysis of large-scale lorawan networks in ns-3
(2017) *Ieee Journals & Magazines*, 4 (6), pp. 186-2198.

3 Petäjäjärvi, J., Mikhaylov, K., Pettissalo, M., Janhunen, J., Iinatti, J.
Performance of a low-power wide-area network based on lora technology: Doppler robustness, scalability, and coverage (Open Access)

(2017) *International Journal of Distributed Sensor Networks*, 13 (3). Cited 143 times.
http://journals.sagepub.com.ezproxy.um.edu.my/loi/dsn
doi: 10.1177/1550147717699412

View at Publisher

4 Noreen, U., Bounceur, A., Clavier, L.
A study of LoRa low power and wide area network technology

(2017) *Proceedings - 3rd International Conference on Advanced Technologies for Signal and Image Processing, ATSIP 2017*, art. no. 8075570. Cited 78 times.
ISBN: 978-153860551-6
doi: 10.1109/ATSIP.2017.8075570

View at Publisher

5 Reynders, B., Meert, W., Pollin, S.
Range and coexistence analysis of long range unlicensed communication

(2016) *2016 23rd International Conference on Telecommunications, ICT 2016*, art. no. 7500415. Cited 123 times.
ISBN: 978-150901990-8
doi: 10.1109/ICT.2016.7500415

View at Publisher