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Abstract

The proposed project aims to develop a data acquisition system using the Internet of things concept. The system monitors the environment in which a solar photovoltaic module is located and sends the generated voltage, ambient temperature and light incidence data to a cloud server through the Message Queuing Telemetry Transport (MQTT) communication protocol. The MQTT message is listened by a program running on the cloud server and the data received is stored on the same cloud server and can be visualized by any allowed remote user.

References

1. Rafael Amaral Shayani, Marco Aurélio Gonçalves de Oliveira, and Ivan Marques de Toledo Camargo. Comparison of the cost between solar photovoltaic and conventional sources. https://edisciplinas.usp.br/pluginfile.php/3427159/mod_resource/content/1/solar.pdf, 2006. [Online; accessed 30 may 2018].
2. M. A. Green, K. Emery, Y. Hishikawa, W. Warta, and E. D. Dunlop. Progress in

- photovoltaics: research and applications. Wiley Online Library, v. 23, n. 1, p. 1–9, 2015., 2015.
3. Renata I. S. Pereira, Paulo C. M. Carvalho, and Sandro C. S. Juc´a. Wifi data acquisition system and online monitoring applied to thermoelectric microgeneration modules. *Renewable Energy and Power Quality Journal (RE&PQJ)*, (13):370– 373, 2015.
 4. Ramesh Nagappa Naik and Shruthi G. Article: lot based secure smart home. *IJCA Proceedings on National Conference on Electronics, Signals and Communication, NCESC 2017(4):7–10*, July 2018. Full text available.
 5. Renata I. S. Pereira, Ivonne M. Dupont, P. C. M. Carvalho, and Sandro C. S. Juc´a. lot embedded linux system based on raspberry pi applied to real-time cloud monitoring of a decentralized photovoltaic plant. *Measurement*, 114:286–297, 2018.
 6. Renata I. S. Pereira, Sandro C. S. Juc´a, and Paulo C. M. de Carvalho. Online monitoring system for electrical microgeneration via embedded wifi modem. *IEEE Latin America Transactions*, 14(7):3124–3129, 2016.
 7. OASIS. Mqtt, message queuing telemetry transport. <http://mqtt.org/documentation>, 1999. [Online; accessed 30 may 2018].
 8. Zamir Chafekar, Mohd Husain Khan, Kuldeep Lakra, and S. B. Dhonde. Implementation of automatic gas accident prevention system using arduino and gsm. *International Journal of Computer Applications*, 180(47):5–7, Jun 2018.
 9. Everton Dornelas and S´ergio Campello Oliveira. Monitoramento de consumo dome´s­tico de A´ gua, utilizando uma metaplataforma de iot. <http://revistas.poli.br/index.php/rep/article/viewFile/575/187>, 2017. [Online; accessed 30 may 2018].
 10. Jo˜ao Luis Grizinsky de Brito. A system for monitoring private, real-time and non-invasive energy consumption using arduino technology. http://www.uel.br/ctu/deel/TCC/TCC2016_JoaoLuisGrizinskyBrito.pdf, 2016. [Online; accessed 30 may 2018].
 11. Zatin Gupta, Tanay Sen, Vinayak Gupta, Vaishnavi, and Vijay. Home-automation using arduino-uno board and android app. *International Journal of Computer Applications*, 180(51):18– 20, Jun 2018.
 12. Thiago Henrique Deicke. Real-time monitoring system for urban acoustic levels based on wireless sensor networks. B.S. thesis, Universidade Tecnol´ogica Federal do Paran´a, 2016.
 13. NodeMCU. Nodemcu documentation. <http://nodemcu.readthedocs.io/en/master/en/>, 2017. [Online; accessed 30 may 2018].
 14. Texas Instruments. Cdx4hc405x, cdx4hct405x high-speed cmos logic analog multiplexers and demultiplexers. <http://www.ti.com/lit/ds/symlink/cd74hct4051.pdf>, 2017. [Online; accessed 30 may 2018].
 15. V. V. MOURA. Python program that manipulates and saves data coming from mqtt topics in database. <https://github.com/vitor-veras/mqtt-to-db>, 2018. [Online; accessed 12 june 2018].

Index Terms

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Keywords

Data acquisition, IoT, MQTT