

5. CONCLUSIONS AND RECOMMENDATIONS

From the research carried out it has been successfully designed to build an automation system that can be controlled remotely based on SMS. The results of the measurement of light intensity and room temperature between the designed tools and standard tools have a precision level of 98.67 % and 95.25 % for the Dark – Cold rooms, 91.94 % and 92.32 % for the Dark – Hot rooms, 97.18 % and 95.19 % for Bright – Cold rooms, 92.02 % and 93.8 % for Bright – Hot rooms.

From the results of statistical calculations by manual and using the IBM SPSS Statistics 22 application, there is no significant difference in the average measurement results between the designed tools and standard tools with a confidence level of 95 %.

For the next researcher it is recommended to use a GSM module that is capable of receiving HSDPA signals or better known as 3G because the 3G network expansion is also a large investment for operators [15] has spread evenly throughout the region rather than the GPRS network.

REFERENCES

- [1] The International Energy Efficiency Scorecard. <https://aceee.org/portal/national-policy/international-scorecard>, accessed on Jan. 3, 2019.
- [2] Indonesia – Electric power consumption (kWh per capita). <https://tradingeconomics.com/indonesia/electric-power-consumption-kwh-per-capita-wb-data.html>, accessed on Jan. 3, 2019.
- [3] Manjula, V.S., Karamagi, RI. (2018). Automatic pick and place robot manipulation using a microcontroller. *Journal of Applied & Computational Mathematics*, 7(3): 1. <https://doi.org/10.4172/2168-9679.1000408>
- [4] Bamisaye, J., Ayodeji, B., Ademiloye, I. (2016). Microcontrollers based smart control system with computer interface. *Journal of Electrical & Electronic Systems*, 5(3): 2-3. <https://doi.org/10.4172/2332-0796.1000186>
- [5] Relay: Construction, Working and Types, <https://circuitdigest.com/article/relay-working-types-operation-applications>, accessed on Feb. 18, 2019.
- [6] Ardavan, M. (2016). Implementation of PID controller by microcontroller of PIC (18 Series) and controlling the height of liquid in sources. *Advances in Robotics & Automation*, 5(3): 3. <https://doi.org/10.4172/2168-9695.1000156>
- [7] Vikrant, V., Maulin, P., Saeed, Bagheri. (2017). A data-driven approach for accurate estimation and visualization of energy savings from advanced lighting controls. *Innovative Energy & Research*, 6(2): 1. <https://doi.org/10.4172/2576-1463.1000177>
- [8] Shirzadfar, H., Khanahmadi, M. (2018). Design and development of ECG simulator and microcontroller based displayer. *Journal of Biosensors & Bioelectronics*, 9(3): 4-5. <https://doi.org/10.4172/2155-6210.1000256>
- [9] Akinwale, O.O. (2018). Design and simulation of a 1 kVA arduino microcontroller based modified sine wave inverter using proteus. *Journal of Electrical & Electronic Systems*, 7(4): 1. <https://doi.org/10.4172/2332-0796.1000282>
- [10] Ardiansyah, R.A., Yazid, E. (2017). Rotational speed control of brushless DC motor using genetic algorithm optimized PD controller. *Jurnal Elektronika dan Telekomunikasi*, 18(2): 3. <https://doi.org/10.14203/jet.v18.75-80>
- [11] Comparison of Two Means. <http://www.stat.yale.edu/Courses/1997-98/101/meancomp.htm>, accessed on Jan. 4, 2019.
- [12] Jahlool, J.S. (2018). Automatic detection and correction the fault in electrical power feeders based microcontroller. *Journal of Electrical & Electronic Systems*, 7(3): 2. <https://doi.org/10.4172/2332-0796.1000271>
- [13] Media, A., Hamid Reza, N. (2013). A hospital healthcare monitoring system using wireless sensor networks. *Journal of Health & Medical Informatics*, 4(2): 1. <https://doi.org/10.4172/2157-7420.1000121>
- [14] Bamisaye, A.J., Adeoye, O.S. (2016). Design of a mobile phone controlled door: A microcontroller based approach. *Electrical & Electronic Systems*, 5(1): 1-4. <https://doi.org/10.4172/2332-0796.1000167>
- [15] What is the difference between 2G and 3G? <https://www.hutch.lk/difference-2g-3g/>, accessed on Feb. 18, 2019.