

Trends and Challenges in Optimization Techniques for Operation and Control of Microgrid – A Review

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Abstract

An attempt has been made in this paper to reveal the trends and challenges in optimization techniques for operating and controlling the Microgrid, a controllable part of the smart grid. The Operation and control of Microgrid clearly fits into the broad area of multi-objective optimization problem. A critical analysis of the through literature review indicates that the alternative intelligent methods as compared to the slower conventional methods are showing better promise in the area of optimization. The latest trend shows the shift towards computational alternatives from the traditional iterative techniques (gradient based methods) due to the need of deriving near-optimum results in short periods of time. The computational alternatives include evolutionary, heuristic, and nonclassical algorithms.

Keywords: Microgrid, Distributed Energy Resources (DER); Alternative Energy distributed generation (AEDG); Distributed Intelligent Energy Management System (DIEMS); Microgrid energy trading model (METM).

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A Comparative Study between Affiliated Engineering Colleges and Deemed Universities

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Abstract

Quality in technical education is a multidimensional concept. It should embrace all its functions, and activities: planning curricula for engineering programmes, teaching, research, recruiting faculty and staff, developing them, students, buildings, facilities, equipment, services to the community and the academic environment. In this study, an attempt is made to compare the effectiveness of institutional development activities that are being followed in affiliated engineering colleges and deemed universities. Questionnaires have been developed for various criteria involved in institutional development. The sample institutions were selected from the institutions in Tamil Nadu only. The data collected from the sample population were analyzed and suitable recommendations are suggested.

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Thinning Algorithm Framework for Offline Handwritten Numeral Pattern

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Abstract

Handwritten pattern recognition is classified as off-line and on-line recognition. In off-line recognition, the writing is usually captured optically by a scanner and the completed writing is available as an image [15]. Off-line handwritten devanagri numeral recognition continues to be an active area for research towards exploration of newer techniques that would improve recognition accuracy. An important preprocessing step used in hand written devanagri numeral pattern recognition is to represent the structural shape of such pattern by reducing it to a graph. This reduction can be accomplished by obtaining the skeleton of the region using a thinning algorithm. The application of thinning algorithm yields skeleton as output. Skeletons are widely used shape descriptors which summarize the general form of binary objects. Further, a neural network based thinning framework can be designed for offline handwritten numerals.

Keywords: Thinning algorithm, neural network, numeral pattern, connectivity, execution time, character recognition.

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Selection of Filler Wire for Weld Joint of Aluminium Conductors in Power Bus Ducts

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Abstract

A busduct is a device used for the effective and efficient supply of electricity. Copper and aluminum materials are generally used for the conductors in busducts. The current carrying parts in busducts like conductors and enclosures are welded end to end. The welded joints in current carrying conductors and enclosures should be defect free so that any electrical losses do not occur. MIG welding is generally used for welding of conductors in busducts as it the most suitable process for welding aluminum. M/S Control and Switchgear Electric Ltd., Kasna, Noida, which is engaged in manufacturing busducts, was facing the problem of porosity in the weld joints in aluminium busducts. Due to this, heavy electric losses occurred during electricity transmission. The dominant cause of porosity in the weld joints was found to be the filler wire, grade 19500M, being used in the MIG welding of aluminium busducts. Experiments were conducted using different filler wires with the objective of minimizing porosity in weld joints. Nondestructive testing of welded joints was carried out to determine the porosity content using filler wires of different grades. It was found that porosity content in the weld joints was 1.92% when filler wire of grade ER4043 was used, whereas it was 12.32% when the original filler wire of grade 19500M was used.

Keywords: Busducts, Aluminium Welding, Porosity, Filler Wires.

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Kaizen – A way of Productivity Improvement in Electronic Industry: A Case Study

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Abstract

Kaizen is based on making little changes on a regular basis: always improving productivity, safety and effectiveness while reducing waste. It is a system that involves every employee, from upper management to the cleaning crew. Since continuous improvement is one of the key instruments to improve quality of product which contributes to the productivity also, so everyone is encouraged to come up with small improvement suggestions on a regular basis in his or her business. In a reputed Defence electronic equipment manufacturing company, Kaizen is used in improving the productivity of PCB assembly processes. There various causes of PCB assembly defects are identified, causes are analysed and correct method for carrying out PCB assembly processes are identified and implemented successfully. As a result of that, First Time Pass of those PCBs are improved considerably.

Key words: PCB, FTP, SOP, SMT, Pick & Place Machine, Reflow soldering, Hand Soldering.

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