ABSTRAK

Di era industri 4.0 diharapkan hardware dan software saling berinteraksi sehingga mampu memberikan informasi digital yang akurat dan dipercaya untuk kemajuan industri itu sendiri. Hardware merupakan integrasi perangkat input data (sensor) terhadap Programmable Logic Control (PLC) dirancang menjadi satu kesatuan fungsi untuk proses data dan kendali mesin mulai awal proses produksi hingga menjadi produk yang bisa dipasarkan dan dipergunakan untuk kesejahteraan manusia. Software merupakan perangkat kumputerisasi yang terstruktur untuk mengolah dan menghasilkan big data digital cepat, tepat dan akurat. Big data tersebut dijadikan menjadi acuan yang akurat terhadap kineja mesin dalam melakukan suatu proses produksi serta operator. Solusi mengingkatkan produktivitas produksi baut di PT Mega Waja Corporindo yang masih berperan di industri 3.0 adalah menerapkan implementasi Overall Equipment Effectiveness (OEE). Data sebelum implementasi sistem OEE adalah availability: 87.03%, performance: 86.48% quality: 94.72% dan OEE 71.24%. Melalui implementasi sistem OEE terhadap sejumlah data (big data) maka OEE Software secara automatis melakukan proses big data sehingga dihasilkan availability: 99.04%, performance: 100%, quality: 99.00% dan OEE; 98.85%. Dengan demikian hasil ini dapat dijadikan sebagai tolak ukur kelayakan proses produksi disebabkan oleh kualitas preventive maintenance serta sumber daya manusia (SDM) yang lebih baik. OEE software akan memaparkan dengan jelas six big losses yang sering terjadi selama proses produksi. Melalui implementasi software OEE ini dipastikan akan menaikkan produktivitas produksi diatas standarisasi OEE World Class sudah ada proses industri di dunia tanpa membeli equipment baru.

Kata kunci: Sensor, PLC, OEE, Six Big Losses, Big Data, Industri 4.0, OEE Software, Preventive Maintenace dan SDM.

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ABSTRACT

The industrial 4.0 hardware and software are expected to interact with each other so that they are able to provide accurate and trusted digital information for the advancement of the industry itself. Hardware is an integration of data input devices (sensors) with Programmable Logic Control (PLC) designed to be a unified function for data processing and machine control from the beginning of the production process until it becomes a product that can be marketed and used for human welfare. Software is a computerized device that is structured to process and produce digital big data quickly, precisely and accurately. Big data is used as an accurate reference to the performance of the machine in carrying out a production process and the operator. The solution to increasing bolt production productivity at PT Mega Waja Corporindo which still being a role in the 3.0 industry is to implement the Overall Equipment Effectiveness (OEE) implementation. Data before the implementation of the OEE system were availability: 87.03%, performance: 86.48% quality: 94.72% and OEE 71.24%. Through the implementation of the OEE system for a number of data (big data), the OEE Software automatically carries out the process of big data to produce availability: 99.04%, performance: 100%, quality: 99.00% and OEE; 98.85%. Thus these results can be used as a benchmark for the feasibility of the production process due to the quality of preventive maintenance and better human resources (HR). OEE software will clearly explain the six big losses that often occur during the production process. Through the implementation of this OEE software, it is certain that production productivity will increase above the OEE World Class standardization, there are already industrial processes in the world without buying new equipment.

Keywords: Sensor, PLC, OEE, Six Big Losses, Big Data, Industry 4.0, OEE Software, Preventive Maintenance and Human Resources.