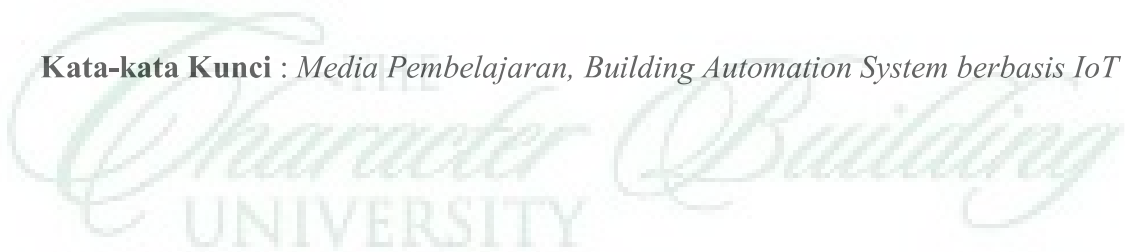


ABSTRAK

CHRISYE BERKAT IMANTHA HULU : *Rancang Bangun Building Automation Sistem (Bas) Berbasis Iot (Internet Of Things) Sebagai Media Pembelajaran Pada Mata Pelajaran Teknik Pemograman, Mikroprosesor Dan Mikrokontroler Teknik Elektro Di SMK Negeri 2 Pematang Siantar. Skripsi. Fakultas Teknik Universitas Negeri Medan 2023*

Building Automation System (BAS) adalah infrastruktur jaringan komunikasi yang mengatur berbagai layanan bangunan seperti monitoring dan kontrol penerangan atau temperatur untuk penghematan energi dan biaya pemeliharaan. BAS merupakan contoh dari sistem kontrol terdistribusi atau Distributed Control System (DCS). Suatu bangunan yang dikontrol oleh BAS sering disebut sebagai sistem bangunan cerdas. Teknologi BAS melibatkan beberapa komputer, sensor, aktuator, yang terhubung dengan menggunakan protokol jaringan standar seperti LonWorks, BAC-net, KNX/EIB, Internet based, Wired, dan nirkabel. Penelitian ini bertujuan untuk menerapkan atau mengembangkan media pembelajaran menggunakan Prototype Building Automation System (BAS) berbasis Internet Of Things (IoT) pada mata pelajaran Teknik Pemograman, Mikrokontroler, dan Mikroprosesor di SMK Negeri 2 Pematang Siantar, metode penelitian yang digunakan adalah metode penelitian dan pengembangan (Research and Development) dengan model pengembangan IDDIE. Tahapan dalam pengembangan yaitu: 1) Tahap analysis, 2) Design, 3) Development or Production 4) Implementation Or Delivery, 5) Evaluation, Pengambilan data validasi materi dan media pembelajaran menggunakan skala likert. Hasil dari penelitian pengembangan ini berupa prototype sistem keamanan rumah (Building Automation System) beserta Jobsheet. Media pembelajaran ini telah melalui tahap uji validasi dengan rata-rata persentase capaian sebesar 88,35% menurut ahli materi dan 89,35% menurut ahli media dengan kategori sangat layak digunakan. Dari hasil penelitian dapat disimpulkan bahwa media pembelajaran Building Automation System (BAS) berbasis IoT (Internet of Things) sangat layak digunakan sebagai media pembelajaran pada mata pelajaran Teknik Pemograman, Mikroprosesor dan Mikrokontroler

Kata-kata Kunci : *Media Pembelajaran, Building Automation System berbasis IoT*



ABSTRACT

CHRISYE BERKAT IMANTHA HULU : *Design Building Automation system (Bas) - based Iot (Internet of Things) as a learning medium in the subjects of Programming Techniques, microprocessors and microcontrollers of Electrical Engineering at SMK Negeri 2 Pematang Siantar*. Thesis. Faculty Of Engineering Medan State University 2023

Building Automation System (BAS) is a communication network infrastructure that regulates various building services such as monitoring and control of lighting or temperature for energy savings and maintenance costs. BAS is an example of a Distributed Control System (DCS). A building controlled by BAS is often referred to as an intelligent building system. BAS technology involves multiple computers, sensors, actuators, which are connected using standard network protocols such as LonWorks, BAC-net, KNX/EIB, Internet based, Wired, and wireless. This study aims to implement or develop learning media using Prototype Building Automation System (BAS) based on Internet of Things (IoT) in the subjects of Programming Techniques, Microcontrollers, and microprocessors in SMK Negeri 2 Pematang Siantar, the research method used is research and development method (Research and Development) with IDDIIE development model. Stages in the development are: 1) analysis phase, 2) Design, 3) Development or Production 4) Implementation or Delivery, 5) Evaluation, data validation retrieval of materials and learning media using the likert scale. The results of this research development in the form of home security system prototype (Building Automation System) along with Jobsheet. This Learning Media has gone through the validation test stage with an average percentage of achievement of 88.35% according to material experts and 89.35% according to media experts with a very feasible category to use. From the results of the study it can be concluded that the Learning media Building Automation System (BAS) based IoT (Internet of Things) is very feasible to be used as a learning medium in the subjects of Programming Techniques, microprocessors and microcontrollers

Key Words : *Learning Media, Design Building Automation system (Bas) - based Iot (Internet of Things)*