

# INTELLIGENT ELECTRIC DRIVE ADDITION FOR DISABILITY WHEELCHAIR SEATS USING FUZZY LOGIC ADAPTIVE ALGORITHM

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## ABSTRACT

Persons with disabilities are all people who experience physical, intellectual, mental, and / or sensory limitations in the long term who in interacting with the environment can experience obstacles and difficulties to participate fully and effectively with other citizens based on equal rights. Limitations experienced by a person with a physical disability have the understanding that a person suffering from impaired motion, including paralysis withered or stiff, paraplegi, cerebral palsy (CP), due to amputation, stroke, leprosy and others. On the 2030 sustainable development agenda or Sustainable Development Goals (SDGs) provide references explicitly mentioned in goal number 10 on "Reducing inequality within and between countries and goal number 11 on "Building cities and settlements that are inclusive, safe and durable sustainable ". The Inter-Census Population Survey (SUPAS, 2015) shows 8.56% of Indonesia's population has a disability; The National Labor Force Survey (Sakernas 2015) mentions 12.5%, or the equivalent of 30 million people; and the World Health Organization (WHO) said the disability rate in Indonesia was 15%.

Based on observations that have been made, there are interesting things that are found, namely (1) The existence of discrimination, exclusion, mistaken treatment, and deprivation of the right to education, employment and equal services, (2) Negative stigma that considers persons with disabilities not productive also causes the basic rights as citizens have not been prioritized fulfillment, (3) Law No. 8 of 2016 concerning Persons with Disabilities apparently has not guaranteed the fulfillment of the rights of persons with disabilities to obtain education, health, information, accessible infrastructure and other rights . Therefore, researchers feel the need to make a product that is solutive and innovative for people with disabilities.

The objectives of this study are (1) Designing the Intelligent Electric Drive Add-on for Disabled Wheelchair that implements the Adaptive Fuzzy Logic Algorithm, (2) Making the Intelligent Electric Drive Add-on for Disabled Wheelchair in accordance with the design results, (3) Implementing Disabilities Adaptive Fuzzy Logic Algorithm on the Intelligent Electric Drive Add-on device for Disabled Wheelchair. The method used in this research is R&D with the main steps of Borg & Gall, namely: (1) research and information gathering (research and information collecting), (2) planning (planning), (3) developing preliminary products (develop preliminary form of product ), (4) preliminary field testing, (5) main product revision, (6) main field testing, (7) operational product revision improvement, (8) operational trials (operation field testing), (9) improvement of the final product (final product revision), (10) dissemination and distribution (dissemination and distribution).

Kata Kunci: *INTELLIGENT ELECTRIC DRIVE ADD-ON , DISABILITAS, ADAPTIVE FUZZY LOGIC*