DESIGN AND BUILD OF WHEELCHAIR SOUND CONTROL PROTOTYPE BASED ON NODEMCU DEVICE ESP8266

Nurmawan Bagus Yoga Angga Resa
Electrical Engineering Study Program, Faculty of Science & Technology
University of Technology Yogyakarta
Jl. Ringroad Utara Jombor Sleman Yogyakarta
E-mail : nurmawan.bagus@gmail.com

ABSTRACT

A wheelchair is one of the medical devices used to help people who have problems walking, especially for people with injuries, leg defects, motor nerve disorders, and the elderly. Without a wheelchair they will have difficulty in daily activities. In general, wheelchairs that are still often used are manual system wheelchairs. Along with the development of technology at this time, many innovations can be applied to wheelchairs. To make it easier for users to operate a wheelchair to be more efficient and not consume a lot of energy, an electric wheelchair was created. Smart wheelchairs have also been developed with controllers such as voice control using an android smartphone, so that the wheelchair can be moved forward, backward, stop, turn right and turn left according to voice instructions via an application on the android smartphone. In this research, a wheelchair control prototype will be made using sound based on the NodeMCU ESP8266 device. In the response delay test, the average delay for forward instructions is 2.624 seconds, backward instructions are 2.626 seconds, for right instructions 2.628 seconds, for left instructions
2.6 seconds and for stop instructions 2.628 seconds. The maximum distance that WiFi can connect to a wheelchair prototype is 20 meters. At a distance of 21 meters the Wifi Hotspots connection from Andorid Samsung A12 to NodeMCu ESP8266 was lost.

Keywords*: Wheelchair, Smartphone, NodeMCU ESP8266, WiFi*