

# ***SPEECH RECOGNITION FOR A VOICE CONTROLLER WHEELED SOCCER ROBOT***

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## **ABSTRAK**

Teknologi *voice recognition system* adalah teknologi yang memiliki kemampuan menerjemahkan dan mengenali suara manusia yang dapat dipahami oleh komputer dengan menggunakan algoritma tertentu. Pada Tugas Akhir ini, teknologi *voice recognition* akan diterapkan kepada robot sepak bola beroda, yang akan dikontrol menggunakan dua *mode*. *Mode* pertama robot dikontrol dengan *smartphone* melalui aplikasi *voice controller* dan *mode* kedua robot dikontrol dengan PC/laptop melalui aplikasi *GUI (graphical user interface)* yang telah didesain menggunakan *Visual Studio 2012*. Sistem kontrol pada robot sepak bola beroda dikendalikan dengan *input* suara berupa data intruksi manuver kepada robot melalui aplikasi *voice controller*. Pengontrolan robot dengan *voice controller* juga dipengaruhi pada kondisi area, bila area yang tanpa derau maka respon aplikasi untuk mengenali kata intruksi lumayan cepat sekitar 3 atau 4 detik dan apabila pada kondisi area dengan derau sekitar 5 sampai 12 detik untuk mengenali kata instruksi. Jarak kontrol maksimal pada robot adalah 75 meter apabila lebih dari itu maka intruksi yang dikirim tidak akan dapat dieksekusi oleh robot lagi.

**Kata kunci:** *GUI (graphical user interface)*, Robot sepak bola beroda, Komunikasi serial, *Visual Studio 2012*, *Voice recognition*.

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## ***ABSTRACT***

*Voice recognition system technology is a technology that has the ability to translate and recognize human sounds that can be understood by computers using certain algorithms. In this final project, voice recognition technology will be applied to the wheeled soccer robot, which will be controlled by using two modes. first mode of the robot is controlled by a smartphone which used the voice controller application and the second mode of the robot is controlled by a PC/laptop the GUI (graphical user interface) application that has been designed using Visual Studio 2012. The control system in the wheeled soccer robot is controlled by voice input from the maneuver instructions to the robot through the voice controller application. Controlling robot with voice controller is also affected in the area condition, if the area is without a noise, the response of the application to recognize the instruction word is quite fast around 3 or 4 seconds, if the condition of the area with a noise is about 5 to 12 seconds to recognize the word instruction from the voice controller application. While, controlling the wheeled soccer robot by using mouse control mode has a time span to execute the instruction data that sent from the PC/laptop data controller with a time of 1 second and for kicking the ball instructions for 3 seconds. The maximum control distance on the robot is 75 meters if more than the setting time, the instruction is sent will not be executed by the robot anymore.*

***Keyword:*** *GUI (graphical user interface), Soccer wheeled robot, Serial communication, Visual Studio 2012, Voice recognition.*