

A NEW PROGRAM FOR PREDICTING OFF-ROAD VEHICLE MOBILITY

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ABSTRACT: An off-road vehicles` mobility program that predicts off-road vehicles mobility has been created to meet requirements for both research and educational programs. The program allows quick prediction of off-road vehicles` performance prior to their usage in sites as it checks whether soil properties are compatible with vehicles` parameters and configuration. The program also may be helpful in comparing and assessing the results of vehicles` mobility investigation obtained by using different methods and concluding the parameters affecting vehicles` mobility. The program has been written in Microsoft Visual Basic.net 2008 and can be considered as a new tool for predicting off-road vehicles` mobility. The program provides an intuitive user interface by linking databases such as off-road vehicles` specifications, soil parameters, and empirical equations to predict the wheel formula, motion resistance ratio, torque ratio, net traction ratio and the traction efficiency. It has been proven that the program is easily to use, simple, and efficient.

KEY WORDS: off-road vehicle mobility, wheel formula, motion resistance ratio, torque ratio, net traction ratio, tractive efficiency, simulation

NOVI PROGRAM ZA PREDVIĐANJE MOBILNOSTI TERENSKIH VOZILA

REZIME: Razvijeni program za predviđanje mobilnosti terenskih namenjen je za potrebe kako za istraživanja i za programe obrazovanja. On omogućava brzo predviđanje performansi terenskih vozila pre njihovog korišćenja na u eksploatacionim uslovima, tako što proverava da li su svojstva zemljišta kompatibilna sa parametrima vozila i konfiguracijom. Program takođe može biti od pomoći u poređenju i proceni rezultata mobilnosti vozila dobijenih korišćenjem različitih metoda i parametara koji utiču na mobilnost vozila. Napisan je u Microsoft Visual Basic.net 2008 i može se smatrati kao novo sredstvo za predviđanje mobilnosti terenskih vozila. Program nudi intuitivni korisnički interfejs povezivanjem baza podataka kao što su specifikacije vozila, parametri tla i empirijske jednačine za predviđanje numeričke formula točka, odnosa otpora kretanja, odnosa obrtnog momenta, neto odnosa vuče i efikasnosti vuče. Dokazano je da je program lak za korišćenje, da je jednostavan i efikasan.

KLJUČNE REČI: indeks mobilnosti terenskih vozila, formula točkova, koeficijent otpora kretanju, indeks obrtnog momenta, indeks vuče, efikasnost vuče, simulacija

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