KICKING BALL MECHANISM ANALYSIS USING QUANTITATIVE ANALYSIS METHOD

By

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STATEMENT BY THE AUTHOR

I hereby declare that this submission is my own work and to the best of my knowledge, contains no material previously published or written by another person, nor material which to a substantial extent has been accepted for the award of any other degree or diploma at any educational institution, except where due acknowledgement is made in the thesIs.

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Chairman of the Examination Steering Comitee Date

ABSTRACT

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Quality kicking technique is an important aspect for soccer player to improve the productivity of the player itself. This study will focus in quantitative analysis of kicking technique which angular velocity, acceleration and force of the thigh and leg as the parameters. The experiment was taken by kicking a ball with their own styles in three different target distances and captured by video camera. LabVIEW used to process the image and calculate the data. The good kicking technique can be seen by comparison between the highest activities that have been reached by each player. In this research, player 2 has best kicking technique which has (Angular Velocity = 266.8 deg/s, Acceleration = 1.59 m/s^2, Force = 11.1 N) and the leg movement (Angular Velocity = 47.1 deg/s, Acceleration = 4.88 m/s^2, Force = 15.8). And player 5 has bad kicking technique which has thigh (Angular Velocity = 503.8 deg/s, Acceleration = 3.01 m/s^2, Force = 15.9 N) and leg (Angular Velocity = 364.2 deg/s, Acceleration = 6.39 m/s^2, Force = 15.7 N) which are greater than other players.

Keywwords : Biomechanics, kicking ball mechanism, gait analysis, quantitative analysis, image processing

DEDICATION

I dedicate this thesis to my father, mother, brother, advisors, Astra Vega and everyone would love to see.

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Last but not least, the author realizes that this theses work is far from perfect. Thus, any critics or comments would be welcome and very helpful in improving and developing this thesis for being better.

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