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Development of Detector Tools for Validation of Take Off Fall Away Based on Sensors

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***Abstract*— In this case the authors designed a solution how to make a long jump validation detector that can issue signals such as lights and buzzer sounds that use sensors to validate a jumper. It is expected that in this thesis the development of sensor-based jump validation detector tool is able to help the jury to validate the long jump match quickly and accurately. The purpose of this study to development of sensor-based long jump take off validation detector. This research was conducted at the Faculty of Sport Science, Negeri University, Medan. This research was conducted in November 2019. This product is expected to provide ease and accuracy in seeing the results of the long jump. The research method used is the research and development. The subjects of this study were athletes at UNIMED Athletics. Small-scale trials involving 8 athletes in UNIMED Athletics. Large-scale trials were carried out on 15 UNIMED Athletics. From the results of tests conducted on all students in long jump athletes, using sensors on the long jump, it is very effective and can help the jury to see the success or not jumping every athlete. In addition, the sensor is also in accordance with advances in digital technology so that it is more relevant. The conclussion this sensor based take off long jump validation detector tool needs to be developed further to be better. You can do this by adding other supporting tools so that they look more modern or sophisticated in technology so that they can not only validate the long jump take off but can also validate other sports.**

Keywords: detector tools, athletics

I. INTRODUCTION

Teachers as educators must try to develop their competencies in order to achieve educational goals [1]. Physical education in its understanding is a process of education utilize physical activity to produce holistic changes in individual qualities, both in terms of physical, mental, and emotional. Education the body treats the child as a whole, total being, rather than just think of it as someone who is separate physical and quality mentally [2]. Schools are one place in shaping character [3]. On the other hand that training activities are a fundamental factor if you want to get the peak performance. This condition forces anyone who wishes to do performance training exercises to understand the training procedures themselves in order to achieve the expected goals [4]. Education is a basic need of every human being to ensure his life to be more dignified [5]. Improving the quality of human resources is a serious problem from every country including Indonesia [6].

In the long jump number there is a repulsion pedestal that is marked by a block that is planted flat with the starting line and the landing surface. This is a legitimate area for jumpers, while jumpers are declared invalid when touching the edge of the beam closer to the landing site. The edge is a boundary line that is placed on a plasticine indicator board as a tool for the jury to see the validity of a jumper in making a jump. Please note that sometimes the jury or less observant and careful in observing in detail the plasticine indicator board that is installed, so that it results in an error in declaring the validity of a jumper.

In this research, I will add a sensor to minimize the errors of the jury, which sometimes lack focus or detail in viewing the plasticine indicator board. This is very detrimental to athletes and coaches. Through developing technologies such as video recorders, a jury can help and conduct analysis on the athlete, but by using the tool the results of the analysis are less accurate, it must be more converted into data that matches the expectations of the jury and the athlete. Based on these considerations, it is expected that after the implementation of the long jump validation detector that utilizes a laser sensor that will later be connected with a signal light, flag and buzzer is able to detect the validity of a jumper when repulsive as a simple solution in validating Take Off on the long jump. With a small sensor size it is increasingly easy to apply to many needs, in addition to accurate needs of the sensor also includes ease of use, level of sensitivity and price.

In this case the authors designed a solution how to make a long jump validation detector that can issue signals such as lights and buzzer sounds that use sensors to validate a jumper. It is expected that in this thesis the development of sensor-based jump validation detector tool is able to help the jury to validate the long jump match quickly and accurately.

description above researchers are interested in researching about "development of sensor-based long jump take off validation detector".

II. METHOD

This research was conducted at the Faculty of Sport Science, Negeri University, Medan. This research was conducted in November 2019. This product is expected to provide ease and accuracy in seeing the results of the long jump. The research method used is the research and development [7]. of data sources in this. the subjects of this study were athletes at unimed athletics. small-scale trials involving 8 athletes in unimed athletics. large-scale trials were carried out on 15 unimed athletics

III. RESULTS AND DISCUSSION

From the results of tests conducted on all students in long jump athletes, using sensors on the long jump, it is very effective and can help the jury to see the success or not jumping every athlete. In addition, the sensor is also in accordance with advances in digital technology so that it is more relevant.

IV. CONCLUSION

This sensor based take off long jump validation detector tool needs to be developed further to be better. You can do this by adding other supporting tools so that they look more modern or sophisticated in technology so that they can not only validate the long jump take off but can also validate other sports. In the end, sports achievements, especially long jump athletes, can increase significantly. More than that is inviting sports practitioners to compete in creating new technology

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