

Integrated multi sensors and camera video sequence application for performance monitoring in archery

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ABSTRACT

This paper explains the development of a comprehensive archery performance monitoring software which consisted of three camera views and five body sensors. The five body sensors evaluate biomechanical related variables of flexor and extensor muscle activity, heart rate, postural sway and bow movement during archery performance. The three camera views with the five body sensors are integrated into a single computer application which enables the user to view all the data in a single user interface. The five body sensors' data are displayed in a numerical and graphical form in real-time. The information transmitted by the body sensors are computed with an embedded algorithm that automatically transforms the summary of the athlete's biomechanical performance and displays in the application interface. This performance will be later compared to the pre-computed psycho-fitness performance from the prefilled data into the application. All the data; camera views, body sensors; performance-computations; are recorded for further analysis by a sports scientist. Our developed application serves as a powerful tool for assisting the coach and athletes to observe and identify any wrong technique employ during training which gives room for correction and re-evaluation to improve overall performance in the sport of archery.

KEYWORDS:

Cameras; Manufacture; Sports; User interfaces