

Notational Analysis of Volleyball Using Dartfish for IND vs AUS AVC Men's Tokyo Volleyball Qualification Match 2020

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Abstract - The purpose of the study is to address the player events like serve type, defense type, pass type, attacking position, and player field position. The latest development in software and technology lead us to the match analysis technique, it's used to measure and analyze the complete performance of the player in the match. In this project, we used pre-match video of IND vs AUS AVC Men's Tokyo Volleyball Match as a case study of first set match we found the data like strength and weakness of player volleyball skills (Types of serve, defenses, passes, attack, setter) and player field position its helpful coaches and player to setup strategic ideas for team to take winning chances for matches. ¹

Key Words: Keywords - Player performance, volley ball events, Notational analysis, Dartfish tagging.

1. INTRODUCTION

Volleyball is the major sport in the world, it was invented in 1895 by William G. Morgan, physical director of the Young Men's Christian Association (YMCA) in Holyoke, Massachusetts. It was designed as an indoor sport for businessmen who found the new game of basketball too vigorous. The game is played by two teams, 6 players in each team. 3 on the front row and 3 on the back row. The primary objective in volleyball is to make the ball hit the floor on the opponent's side of the court, while preventing your opponent from doing the same on your side of the court. Each team is allowed a maximum of three contacts/hits with the ball before it must be sent across the net. Points are made on every serve for the winning team. In order to win the game, selecting the player is the main problem for the coach and team. The selection of the best players for the International team by the coaches and sports community in traditional methods like Agility test, shuttle run, beep test, vertical jump, for selecting the athlete. This leads to controversy among the players about measuring the exact game skill needed to win the match. For example, the Battery test is mandatory for the players to get selected for the Indian cricket team and many Soccer teams around the world. Many players who have low game skills can even clear the entry test and the player's actual low performance area is not identified

which becomes the main backlog for the team. The main goal of the project is to analyze the exact game performance of the player in the team using the match analysis technique.² The match analysis technique gives us tactical skill, player feedback with court location. Using this technique, we can select the best player for the International team from the many State team match data's played in the national level matches. We can identify the best player from the state team to the national team by the proposed match analysis technique. The match analysis technique selection will be compared to identify the advantages of the proposed match analysis technique in the player selection. In this project, we are going to find the best practice to select the individual player events like types of serve (Jump serve, stand serve, jump spin, jump floater), pass (Dig, overhead dig, collapse dig, roll through, pancake), attack position (back row, front row, center, slide, quick attack) in the game using Dartfish data and video analysing software match analysis technique.

1.1 Match Analysis

Dartfish - Tagging : Tagging is the action of creating a video index, a list of Events that occur in the video. Dartfish's Tagging module doesn't physically mark a tape but instead brings digital video onto the computer and allows you to create a searchable index of the video content. Each event is tagged with not just one label but a set of keywords that really identify what is happening. This process not only lets you search and review these events but compiles match statistics.⁸ Dartfish Tagging is a combination of long-used tactical analysis methods: Notational analysis - the coach or analyst sits on the sideline with pen & paper ticking off or coding events as they take place in a game. Tagging does this using buttons which are clicked to code events. Video indexing - even before digital video, coaches attempted to make it easier to find useful moments in the video of the game by noting the time that they took place. This made it easier to fast forward to that point on the tape but it's easier still with Tagging; the events you code are listed in an index which can be searched and displayed nonsequentially. add any kind of pagination anywhere in the paper. Do not number text heads-the template will do that for you.

Finally, complete content and organizational editing before formatting. Please take note of the following items when proofreading spelling and grammar:

1.2 Problem Statement

In general, the traditional methods in past the coaches and statisticians use paper and hand calculation to find the weak and strength of the team and opponent. Now the advance technology in the video analysis like Dartfish software can tag the events in the volleyball.

2. Literature Review

S.No	Author	Title	Findings
1	Hannah Reagan Cornelius	Match Analysis of a Women's Volleyball Championship Game	Pass, set, and hit and compare those to the final outcome of the game.
2	Gilbert W Fellingham	Skill Importance in Women's Volleyball	Skill performance is used to calculate importance scores. Importance scores can be used to assist coaches in allocating practice time, developing new strategies, and optimizing team performance relative to player selection.
3	Emad Abdelrasoul	Analytical software program for evaluating the skillful performance of fastbreak in basketball matches.	Dartfish tagging method is used to find the Fastbreak performance in Basketball matches.
4	Nicholas P. Linthorne	Analysis of standing vertical jumps using a force platform	Counter movement Jump versus Squat Jump
5	Anthony Turner,	A Testing Battery for the Assessment of Fitness in Soccer Players	Acceleration, Speed, And Speed-endurance, Reactive Strength, Strength And Power, Agility
6	Jens Bangsbo	The Yo-Yo Intermittent Recovery Test A Useful Tool for Evaluation of Physical Performance in 'Intermittent Sports	Endurance of the athlete
	Maximilian T. Fischer	Video-based Analysis of Soccer Matches	Video-based visualizations help to develop their winning strategies and identify weaknesses in opponents

3. Methodology

In this study, we used pre-match video of IND vs AUS AVC Men's Tokyo Volleyball Qualification 2020 Dartfish Tagging Method:

- Record the full match video of the volleyball game.
- Add the recorded match videos to the tagging tool.
- Play the video.
- By tapping the playing action of video by events button, keyword button, we can collect the data that was performed in the game time stamp.
- After finishing the data collection, we can download the files CSV type.

4. Match Analysis

Dartfish-Tagging: The analysis of this research procedures survey method references and sources of specialized scientific and exploratory studies. Laptop device. Dartfish program version 8 or Live S By using this tagging software we will identify the variables of the study. Serving, Passing, Attacking, Defensive.

4.1 Dartfish Tagging panel



Figure 1 :- Dartfish v8 software - windows screen

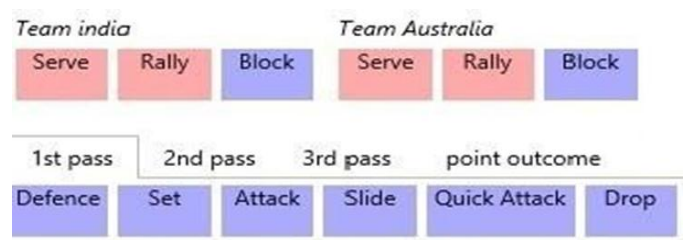


Figure 2 :- Main event panel



Figure 3 :- Point outcome panel



Figure 4 :- Serve type panel

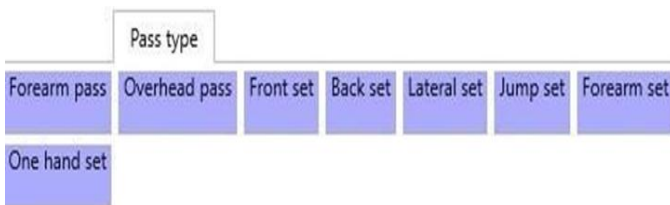


Figure 5:- Pass type panel

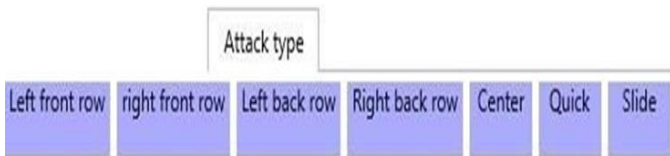


Figure 6 :- Attack type panel



Figure 7 :- Defense type panel

From figures 1 to 7, In dartfish, the tagging panels were created for match analysis. Using this panel we can identify the player position, zone, player activities and individual performance.⁸

4.2 Key Events of Volley ball

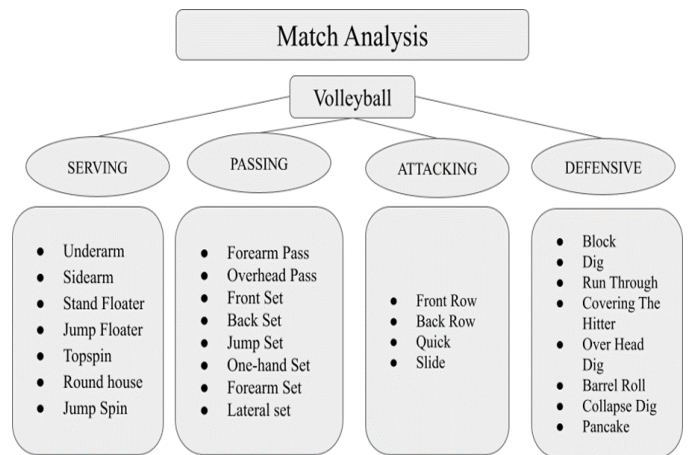


Figure 8 :- Match analysis –Volley ball

Using the above tagging panel and the key events tagged the match stats are generated and result are used for future use of the player and coaches.⁹

5. Results:

Serve - INDIA

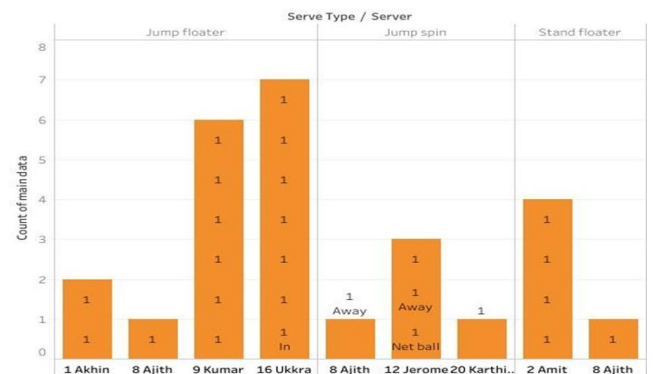


Figure 9:- Serve type – India

Serve - AUSTRALIA

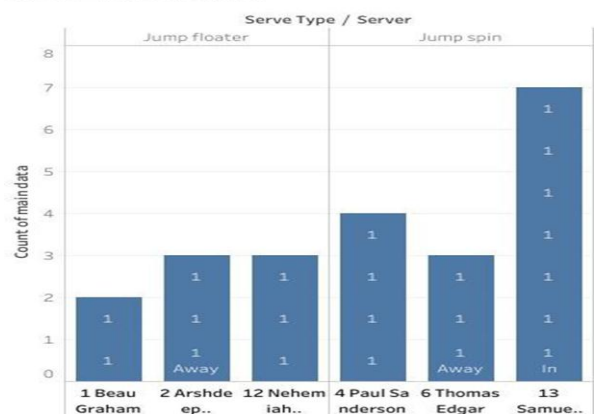


Figure 10:-Serve type - Australia

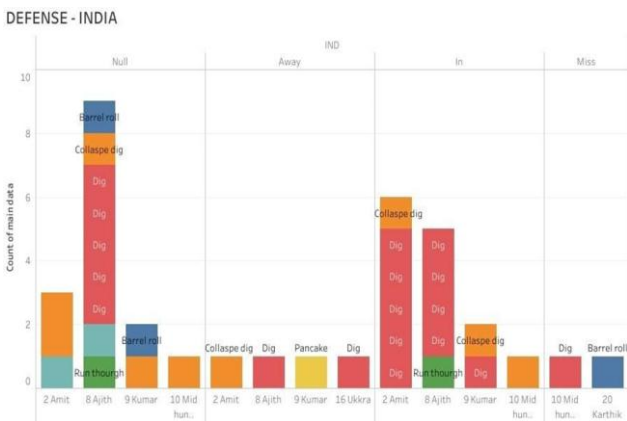


Figure 11:-Defense Type - India

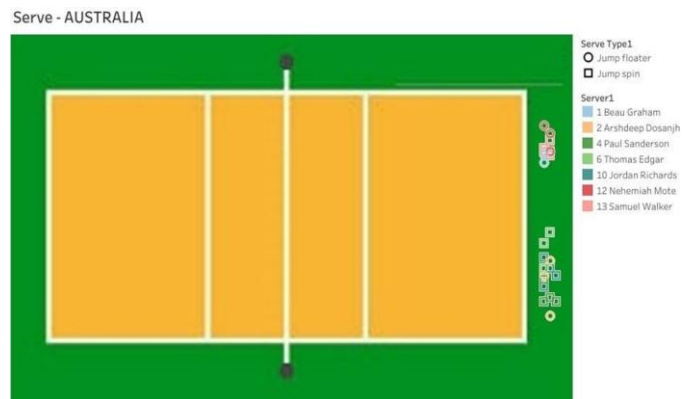


Figure 14:-Serve Australia - Field Position

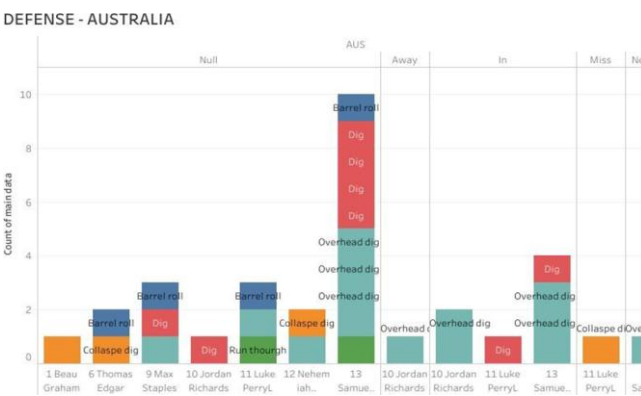


Figure 12:-Defense Type - Australia

5.1 Notational analysis Data:

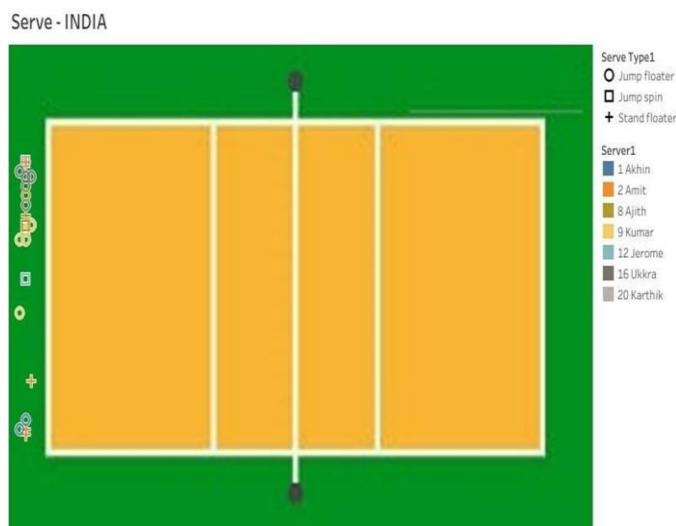


Figure 13:-Serve India - Field Position

6. Conclusion

The present study Identified the player skill and field position is validity and reliability and objectivity of windows programmed by Dartfish software Validity windows programmed by Dartfish software tool for analysis of skill and tactical for volley ball games. Coach can through the program output modified or performance evaluation skills or tactical teams quickly.⁴ The analysis data allows printing reports match the skill and tactical variables

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