Research

UMPSA researchers develop RimauStrike and Spike Trainer to enhance National Sepak Takraw Training effectiveness

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KUALA LUMPUR, 14 April 2026 — A group of researchers from Universiti Malaysia Pahang Al-Sultan Abdullah (UMPSA) has successfully developed a sepak takraw ball launching machine named ‘RimauStrike’ and ‘Spike Trainer’, sports technologies designed to enhance the effectiveness and consistency of athletes’ training sessions.

The development and testing of the machines also involved strategic collaboration with the Malaysia Sepaktakraw Federation (PSM) and the Pahang Sports Council (MSP).

More significantly, the Prime Minister of Malaysia, Datuk Seri Anwar Ibrahim, had the opportunity today to witness the RimauStrike and Spike Trainer in conjunction with the Launching Ceremony of the Malaysia Sepaktakraw Academy Complex held at the Malaysia Sepaktakraw Sports Academy Complex as an initiative to strengthen the development of sepak takraw in the country through the establishment of a structured and high-impact academy.

Also present were Minister of Youth and Sports, Dr. Mohammed Taufiq Johari, Minister in the Prime Minister's Department (Federal Territories), Hannah Yeoh, President of the Olympic Council of Malaysia, Tan Sri Mohamad Norza Zakaria, President of PSM, Datuk Mohd Sumali Reduan, and UMPSA Vice-Chancellor, Professor Ts. Dr. Yatimah Alias.

The complex is equipped with various facilities, including athlete accommodation, a gymnasium, learning rooms, and training courts under one roof.

Meanwhile, Professor Ts. Dr. Yatimah Alias said that the research was conducted by UMPSA researchers from the Faculty of Mechanical and Automotive Engineering Technology (FTKMA) and the Advanced TVET Academy through UMPSA's Sports Technology Innovation Centre (STIC), which serves as the National Sports Industry Centre of Excellence.

"This research involved researchers from FTKMA, namely Ts. Idris Mat Sahat and Ts. Dr. Mohd Faizal Sadali, as well as STIC Director, Associate Professor Ts. Dr. Mohd Hasnun Arif Hassan.

"STIC is a centre of excellence at UMPSA that plays a role in sharing expertise, particularly in the development and research of sports technology.

"The 'RimauStrike' research began in 2023 to support biomechanics experiments that require precise and consistent control of ball velocity so that research findings can be conducted more systematically, accurately, and repeatably.

"RimauStrike was developed to provide a training system that is more consistent, repeatable, and controllable," she said.

She further explained that the machine is capable of launching sepak takraw balls at adjustable speeds while producing more stable ball deliveries compared to manual methods.

"The initial development of this machine aimed to produce a prototype sepak takraw ball launching machine for research experiments related to the impact of ball heading on players' heads.

"In biomechanics impact studies, ball velocity must be carefully controlled to ensure more accurate and reliable experimental results.

"Therefore, UMPSA developed a ball launching machine capable of producing consistent ball velocity that can also be adjusted according to laboratory experimental requirements," she added.

Professor Ts. Dr. Yatimah said that the development of the initial prototype subsequently opened opportunities for the potential application of this technology in sepak takraw athlete training.

“Conventional training methods can become inconsistent due to factors such as coach fatigue, variations in striking strength, and inconsistent striking techniques.

“Therefore, ‘RimauStrike’ was developed to provide a training system that is more consistent, repeatable, and controllable,” she said.

Also present were the Senior Director of Research Excellence Management, Research and Innovation Department, Professor Dr. Abdul Adam Abdullah, and the General Manager of the Research and Innovation Department, Hazmin Aris.

The Malaysia Sepaktakraw Federation also provided support in the form of funding for the development of the latest version of the ‘RimauStrike’ prototype, thereby helping to improve the machine’s design and performance to make it more suitable for sepak takraw athlete training.

Meanwhile, the Pahang Sports Council also provided support in terms of the application of this technology within the context of state athlete training and offered feedback related to actual training requirements in the sport.

The innovation showcased reflects one of the efforts by local researchers in developing technology to enhance research and training in sepak takraw.

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