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Driverless cars race wheel to wheel in Europe for first time

by Nanyang Technological University

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Members of Team Kinetiz posing with the autonomous race car they developed after their victory. Credit: K2

Nanyang Technological University, Singapore (NTU Singapore), UAE technology company K2 and autonomous systems specialist Alp Autonomy have won the world's first multi-car autonomous race held in Europe after their joint entry, Team Kinetiz, took first place at Italy's Imola Circuit on Sept. 5.

Five fully autonomous race cars competed at the Formula 1 circuit in the Abu Dhabi Autonomous Racing League's (A2RL) first international race and its first multi-car competition outside Abu Dhabi.

Team Kinetiz finished ahead of Germany's Constructor Racing. The international field also included reigning A2RL champion TUM from the Technical University of Munich, and Italian teams PoliMOVE from Politecnico di Milano and Unimore Racing from the University of Modena and Reggio Emilia.

From fourth on the grid to victory

For the race, Team Kinetiz started fourth on the grid after qualifying, behind Unimore Racing, PoliMOVE and TUM.

The Singapore-UAE team then moved up during the multi-car race to take the win at one of motorsport's best-known circuits. Team Kinetiz won the race 10.963 seconds ahead of Constructor Racing, which finished in second place.

Italian media reported that a collision eliminated Unimore Racing and PoliMOVE while they were contesting the race, underscoring the challenge of having several autonomous race cars compete simultaneously at high speed.

Team Kinetiz brings together NTU Singapore's research expertise, K2's autonomous technology capabilities and Alp Autonomy's software engineering expertise.

Alp Autonomy joined the team in 2025 and contributed to the autonomous driving stack, including localization, perception, prediction, planning and vehicle control.

Racing without a driver

The teams competed in autonomous race cars based on the Dallara Super Formula SF23 platform.

With nobody behind the wheel, software developed by each team had to control the car and make decisions including when to accelerate, brake and steer, while responding to other cars on the track in real time.

A2RL uses motorsport as a [high-speed testbed for artificial intelligence and autonomous mobility](#), putting autonomous systems through conditions that require rapid perception, decision-making and vehicle control.

Imola presented a new challenge compared with A2RL's previous races at Abu Dhabi's Yas Marina Circuit. The Italian track has elevation changes, bumps, curbs, gravel traps and limited overtaking opportunities.

Before the race, the five teams underwent nine days of testing at Imola. Unimore Racing took pole position with a lap of 1 minute, 37.314 seconds, while Team Kinetiz qualified fourth, 2.936 seconds behind.

A2RL said the fastest autonomous lap during testing came within 0.85 seconds of a benchmark lap set by Super Formula driver Juju Noda.

A2RL expands beyond Abu Dhabi

Organized by ASPIRE, the innovation acceleration arm of Abu Dhabi's Advanced Technology Research Council, A2RL held its first autonomous car race at Yas Marina Circuit in 2024.

The competition has since progressed to multi-car racing. In its 2025 Grand Final, six autonomous cars raced together at Yas Marina Circuit, with vehicles reaching speeds of more than 250 km/h (155 miles per hour).

A2RL said the performance gap between its autonomous cars and a professional driver had narrowed from about 10 seconds in 2024 to 1.58 seconds per lap in 2025.

The Imola race, held as part of the ACI Racing Weekend, marked A2RL's first international race and a step toward its ambition of developing an international championship for fully autonomous race cars.

The 2026 A2RL season is scheduled to conclude at Yas Marina Circuit in Abu Dhabi.

Provided by [Nanyang Technological University](#)

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