



RailDirector

EXCLUSIVELY FOR RAIL INDUSTRY LEADERS

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ROFRAUS

ENGINEERING SOLUTIONS

Bridging the gap

Michel Cociuban, Founder and Owner of Rofraus, writes about his Ascending Mechanised Access Ramp, allowing safe and compliant access to trains, tramways, buses and ferries

The new system allows less mobile people to become routine commuters, eliminating the strain of having to make pre-bookings or to require any type of additional assistance. The A-MAR system has been patented in Australia and is subject to an international patent application under the PCT Treaty, published as WO 2021/056081 A1.

Substantial efforts are being made all over the world to improve the access to public transport for people with mobility limitations. At railway stations, an increasing number of amenities such as lifts and travelators are being installed to provide easy and efficient access to station platforms. However, fewer developments have been made when it comes to assistance with boarding trains from a station platform.

"Different countries have different standards in relation to horizontal and vertical gaps between the platform edge and the train floor," said Michel Cociuban, Founder and Owner of Rofraus Engineering Solutions. "Furthermore, within a country or region, different train stations have different gap dimensions. As a result, the typical solution remains to use a manually deployable ramp with the help of a station attendant. Needless to say, access to trains for less mobile people remains a significant challenge today."

The A-MAR system

To combat this, Michel's Australian company – Rofraus Pty Ltd – has designed and developed its Ascending Mechanised Access Ramp or A-MAR for short. The A-MAR system provides fully automatic, independent, safe and compliant access to trains, tramways, buses and ferries.



Testing the A-MAR prototype



Michel said: "In order to board a train using the A-MAR system, the user must simply complete one action: to press an activation button situated on one of the bollards surrounding the Boarding Assistance Zone on the station platform.

"Similarly, to disembark a train, the only action is to press an activation button situated in the train near the exit door. Flashing lights, installed on top of the bollards on the station platform, are instantly activated to attract the train driver's attention to stop the train as close as practically possible to the car stop mark, allowing the A-MAR to be aligned to the train door. To account for alignment discrepancies between the ramp and train door, the A-MAR system includes sliding actuators to be able to automatically move the ramp along the platform to adjust the precise positioning of the ramp in front of the train door."

Once the train doors are fully open, the operating system of the A-MAR is automatically activated to deploy the ramp without any assistance. A sliding ramp commences deployment from an enclosure on the platform and operates until it reaches a fully deployed position covering both a horizontal and vertical gap between the station platform and train floor.

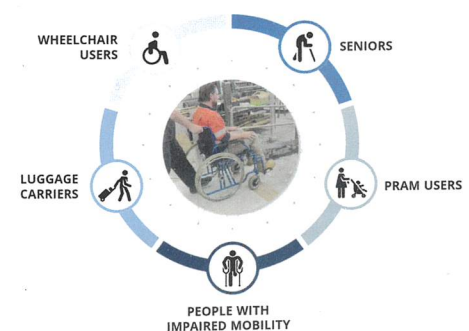
The position of the ramp is monitored by a central control unit, with feedback of sensors located on both the train and platform. The full deployment of the sliding ramp takes between five to seven seconds. When fully deployed, the A-MAR system includes kerbs to prevent feet and wheels from missing the ramp and handrails for assisting passengers when using the ramp.

Where possible, wired communication exists between the central control system, user interfaces (activation buttons) and sensors. Where wired communication is not possible, the vehicle-based system controller communicates directly with the platform-based central control unit using encrypted RF signals.

Innovative engineering solutions

When the user has completed boarding or alighting the train, the ramp can be returned to the stand-by position within the platform enclosure by the user, any person on the platform or train, a train guard, or even the train driver.

Michel, who created Rofraus Pty in 2009 to deliver innovative engineering solutions for the transportation industry, said: "The A-MAR system can be installed rapidly and easily on a station platform, and the system can be simply relocated, replaced or removed with minimal disruption or remediation work. The A-MAR system can also be applied to other structures such as bus stations and ferry wharves to assist boarding on other modes of transport."



"The A-MAR system is built using standard materials and equipment, as well as approved composite and electrical non-conductive components in accordance with safety standards, stakeholder and rail industry requirements. The surface of the ramp is covered with a non-slippery coating to ensure commuter safety. All mechanical parts are standard off-the-shelf components, that can be easily procured to keep production costs low. Additional customised components may be used as alternatives to standard commercially available components." ■

Visit www.rofraus.com for more details.