News Release

Hyundai Walking Car Concept is the Future of the First Responder Industry

- Debuting at CES 2019, “Elevate”, the Ultimate Mobility Vehicle (UMV), prepares communities in the event of a natural disaster
- Wheels with robotic legs allow users to drive, walk or even climb over the most treacherous terrain

LAS VEGAS, Jan. 7, 2019 – Any first responder will tell you that the first 72 hours following a natural disaster are the most crucial to saving lives. However, often times due to the nature of the disaster (forest fire, earthquake, hurricane, or flood), it can be difficult for search-and-rescue and humanitarian aid missions to reach and get immediate help to those in need.

The need for efficient, rapid, resilient transportation for disaster assistance is what led Hyundai to develop the first-ever vehicle with moveable legs. Elevate is the first Ultimate Mobility Vehicle (UMV), blending technology found in electric cars and robots, which allows it to traverse terrain beyond the limitations of even the most capable off-road vehicle.

The Hyundai Elevate Concept in action after an earthquake.

Watch the Hyundai Elevate Concept video here.
https://newspress-hyundai.s3.amazonaws.com/videos%2Foriginal%2F35027-ElevateFullLengthFINAL.mp4
“When a tsunami or earthquake hits, current rescue vehicles can only deliver first responders to the edge of the debris field. They have to go the rest of the way by foot. Elevate can drive to the scene and climb right over flood debris or crumbled concrete,” said John Suh, Hyundai vice president and head of Hyundai CRADLE. “This technology goes well beyond emergency situations - people living with disabilities worldwide that don't have access to an ADA ramp could hail an autonomous Hyundai Elevate that could walk up to their front door, level itself, and allow their wheelchair to roll right in – the possibilities are limitless.”

The Hyundai Elevate Concept helps a person get to a doctor appointment in a city.

The Elevate concept is based on a modular EV platform with the capability to switch out different bodies for specific situations. The robotic leg architecture has five degrees of freedom plus wheel hub propulsion motors and is enabled by the latest in electric actuator technology. This design is uniquely capable of both mammalian and reptilian walking gaits, allowing it to move in any direction. The legs also fold up into a stowed drive-mode, where power to the joints is cut, and the use of an integrated passive suspension system maximizes battery efficiency. This allows Elevate to drive at highway speeds just like any other vehicle. But no other can climb a five foot wall, step over a five foot gap, walk over diverse terrain, and achieve a 15 foot wide track width, all while keeping its body and passengers completely level. Further, the combination of wheeled motion with articulating legs provides a new paradigm of mobility by enabling faster walking speeds,
unique dynamic driving postures and torsional control at the end of each leg.

The Hyundai Elevate demonstrates its mammalian walking gaits.

“By combining the power of robotics with Hyundai’s latest EV technology, Elevate has the ability to take people where no car has been before, and redefine our perception of vehicular freedom,” said David Byron, design manager, Sundberg-Ferar. “Imagine a car stranded in a snow ditch just 10 feet off the highway being able to walk or climb over the treacherous terrain, back to the road potentially saving its injured passengers – this is the future of vehicular mobility.”
A Hyundai Elevate climbs itself out of a snow covered ditch.

The Hyundai Elevate in drive mode.
Inside the Elevate, passengers would experience a vehicle fully engineered to tackle the roughest terrain comfortably. Engineering enhancements include:

- Robotic legs with five degrees of freedom plus in-wheel propulsion
- Ability to walk in mammalian and reptilian style gaits for omnidirectional motion
- Capable of climbing a five foot vertical wall
- Step over a five foot gap
- Non-back drivable motors enable the legs to lock in any position
- Modular electric vehicle platform

“We have been working with Sundberg-Ferar on the Elevate Concept for almost three years now,” added Suh. “Elevate is part of our various ‘Last-Mile’ technologies and solutions and it also has ‘Last-100 Yards’ capability too.”

- Ends –

About Hyundai CRADLE
Hyundai CRADLE is Hyundai Motor’s corporate venturing and open innovation business, which partners and invests extensively in prominent global startups to accelerate the development of advanced future automotive technologies. CRADLE identifies newly established startups that focus, amongst others, on ‘Disruptive Innovations’, including mobility services, artificial intelligence, robotics, smart energy solutions, smart city and cyber security.

About Hyundai Motor Company
Established in 1967, Hyundai Motor Company is committed to becoming a lifetime partner in automobiles and beyond with its range of world-class vehicles and mobility services offered available in more than 200 countries. Employing more than 110,000 employees worldwide, Hyundai sold more than 4.5 million vehicles globally. Hyundai Motor continues to enhance its product line-up with vehicles that are helping to build solutions for a more sustainable future, such as NEXO – the world’s first dedicated hydrogen-powered SUV.

More information about Hyundai Motor Company and its products can be found at:
http://worldwide.hyundai.com or http://globalpr.hyundai.com

About Sundberg-Ferar
Sundberg-Ferar, located in Metro Detroit, and established in 1934, is a product innovation studio specializing in innovation strategy, design research, industrial design, user interface, engineering and prototyping. For decades they have spearheaded design trends by specializing in multiple categories such as consumer products, medical equipment, and vehicles of all types, that improve people’s quality of life through impactful “concept-to-completion” product design and development.

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