DeAGOSTINI
MODEL SPACE™
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For Immediate Release

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Build Your Own Robot!
Robi the Robot is Now Available in the U.S.

October 20, 2015 (Chicago, IL) – His name is Robi and he's a robot you can build yourself -- with no tools and no programming or technology experience. And Robi is now available in the United States. With an innovative design and state-of-the-art technology, Robi will become a family member that everyone can enjoy.

Standing just over 13" high, Robi talks, runs, dances (don't miss the Robi the Robot flash dance in Japan http://mashable.com/2015/01/20/humanoid-robots-dance-tokyo/) and plays games. As the first robot with the patented, innovative SHIN-Walk technology, Robi's movements are fluid and his gestures almost human.

This friendly little guy communicates – almost like a human. Using special sensors, Robi perceives the presence of people and turns his face in their direction. Thanks to its voice recognition system he understands about 200 English words and phrases and responds with appropriate answers via a built-in speaker. His eyes sparkle as he interacts – changing color depending on the activity, creating a friendly, welcome. Plus, a built-in infrared remote transmitter allows him to function as a universal remote – one that you are not going to lose! Robi is much more than just another technical gadget.

The secret of his success is that he combines functionality with style and a touch of humor.

Designed exclusively for De Agostini, Robi was created by Tomotaka Takahashi, a world-renowned expert in robotics. His humanoid creations include Kirobo – Robi's older brother and the world 's first talking robot sent to space on the International Space Station. From a Kit to a Working Robot, Robi is available through a unique "subscription" program exclusively at www.model-space.com.

Each month, model-builders will receive:

• High-quality parts specifically designed by Robi's creator, Tomotaka Takahashi.
• Clear, step-by-step build guides illustrated with easy-to-follow instructions.
• Magazines with fascinating articles introducing you to the world of robotics. Topics include Real Robots (e.g. Kenshiro: Exploring How Humans Move); Robot Stars (e.g. Blade Runner: Humanoid Robots); and Understanding Robotics (e.g. AI: Robots get Closer to 'Thinking' Like Humans).
• Plus the ability to join the community to share stories, advice and tips with thousands of like-minded modelers on our forum!

Robi will provide many hours of fun for model builders, as you watch him become more and more responsive and interactive. A professional and dedicated team with extensive experience in building models is available to customers in an active forum and through social networking sites like Facebook.

Robi is available exclusively from Model-Space. To order or for more information, please visit http://www.model-space.com/us/build-your-robi.html.

About Model-Space
Model Space is one of the world's largest publishers of quality models. The company offers a wide range of other models including model ships, cars,

planes, trains, bikes, military vehicles and RC models for beginner and professional model builders. In addition to Robi the Robot, Model-Space recently introduced models that include the Millennium Falcon, the Sky Rider Drone and a 3D Printer. For more information, please visit www.model-space.com.

About De Agostini Publishing

De Agostini Publishing is the world leader in the partworks and modeling industry and a top global publisher with products ranging from models and hobby courses to educational publications for children and adults. De Agostini Publishing has a broad presence in Europe, Asia, North America and Latin America (through a joint venture with the Planeta Group) with sales in excess of $500 million annually. De Agostini publishes more than 300 collections and models per year, which are distributed across 46 global markets, in 21 major world languages. De Agostini Publishing is part of the DeAgostini Group founded in 1901 with headquarters in Novara, Italy.

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Corporate Background

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http://www.deagostiniusa.com

About De Agostini Publishing

De Agostini Publishing is the world leader in the partworks market and has been publishing worldwide for over 50 years with products ranging from hobby courses to soft-educational publications for children and adults, from physical collections to general reference with a high level of digital content, and from flow packs and trading cards to innovative and unique content for the latest digital devices.

Robi – Vital Stats

Robi is barely 14 inches and weighs just over two pounds but the friendly little guy has giant talents. Through sensors, speech recognition and integrated LEDs, Robi's almost human features allows him to communicate and interact with people. Using special sensors, Robi is able to perceive the presence of people and to turn in their direction. His mouth lights up when speaking and his eyes sparkle.

Robi:

- Recognizes and speaks more than 200 words and phrases.
- Stands at 13.4" and weighs around 2.2 pounds including battery.
- Has a game mode for playing with his human friends.
- Was the first robot with the patented, innovative SHIN-Walk-effect technology creating an almost human movement.
- Has an older brother, Kirobo, who reached the International Space Station in 2013.
- Has LEDs that allow his eyes and mouth to light up when he talks or moves – all in different colors depending on the activity.
- Does not require programming to assemble, meaning he is the ideal companion for people who aren't tech experts but still love robots.
- Can sing and dance.
- Can even function as a tv remote!
- Is available through a unique subscription program.

More than 50,000 Robis have been built worldwide!

Tomotaka Takahashi Robi's Creator

Robotics experts Tomotaka Takahashi is the man behind some of Japan's leading designs, bringing to life everything from 3.5m-tall earthquake rescue droids to friendly miniature humonoids, such as Robi. He has even put a robot in space!

Founder of Japan's industry-leading company Robo Garage, and an associate professor at three of the country's major universities, Robi's creator Tomotaka Takahashi is hailed as one of the world's foremost roboticists. At the heart of his interest in the science of designing robots is his belief that technology such as artificial intelligence and the creation of 'sensitive' robots can bring enormous benefits to people and modern society.

Takahashi is best known for his advanced inventions in the field of humanoid robots. His little creations (they are commonly less than 40cm high) are characterized by the fluid way in which they are able to walk, run, jump, sit down and stand up, raise their arms and turn – movements which make them seem almost alive.

INSPIRATION
Takahashi's original inspiration was Japan's famous *manga* series *Astro Bay*, whose creator, Osamu Tezuka, constructed a detailed fantasy about a humanoid robot that combines super powers with a near-human personality. The cartoons gave the young Tomotaka Takahashi the ambition to create the real thing, and in 1999 he won a place at Kyoto University to study engineering, his first step to becoming a robot designer.

For the young inventor, it was important for a robot to look aesthetically pleasing. He felt that this was the best way for a relationship to develop between man and a machine. Takahashi has said that he wants to contribute to a future where it will be normal to have a 'pet robot' at home.

CUTTING-EDGE TECHNOLOGY
Takahashi's work first attracted major international attention, when Chroino was nominated as one of *TIME Magazine's* Coolest Inventions of 2004. Between 2004 and 2008, he was a core member of Team Osaka, which went on to win five RoboCup world championships – an international contest for robot soccer players, aimed at encouraging research into robotics and artificial intelligence.

Takahashi's robots hit the spotlight again with a series of designs to promote the power of Panasonic's EVOLTA batteries (which were certified by Guinness World Records as the longest-lasting of their type). In 2008, Takahashi's battery-powered EVOLTA robot succeeded in climbing the 530m wall of the Grand Canyon. In 2009,

the robot powered around the Le Mans car race track for 24 hours, and in 2010, it travelled 500km from Tokyo to Kyoto.

KIROBO: ROBOT ASTRONAUT

Takahashi's latest landmark project is Kirobo, the world's first humanoid robot astronaut, which was sent up to the International Space Station (ISS) in August 2013, Kirobo (whose name comes from the Japanese words for 'hope' and 'robot') was developed in association with the Toyota Motor Corporation, Dentusu Inc. (a Tokyo advertising and PR company), and the University of Tokyo.

Kirobo summed up his creator's philosophy neatly during a promotional demo of his speech-recognition ability. Asked what his 'dream' was, the 34cm-tall robot replied, 'I want a future where humans and robots can live together and get along.' Kirobo is hailed as a prototype for the wider introduction of humanoid robots into society, in which Robi has an important part to play.

Kirobo's red boots are his creator's homage to *Astro Boy*. As a child, Tomotaka Takahashi was inspired by these stories of future worlds where robots and humans happily coexist. He is a man doing all he can to make that vision into a reality.

SHIN-WALK: A NEW WAY TO MOVE

At the heart of so much of Takahashi's success has been the technology he designed to give his robots more fluid two-legged (bipedal) locomotion, which he called SHIN-Walk. Takahashi developed the now-patented technology to counter what he saw as the unnatural walking styles common to many of the conventional humanoid robots that were popular when he was cutting his teeth as a young robot designer. In an attempt to move away from the bent-over and staggering motions that characterized those robots, SHIN-Walk places a far greater emphasis of the fluidity and human-like quality of his robots' walking patterns, bringing a far more lifelike and appealing air to his designs.

BAD BACK

The thing that prevents many more conventional humanoid designs from achieving the natural, human-like movement is their posture, Takahashi explains. Most have their legs set perpendicular to the ground, attached at right angles to their hip joints. In this formation, each leg's 'roll axis' – the invisible line it will follow when taking a step, as dictated by its hip joint – is parallel to the other. Together with the horizontal lines of the waist and feet, this formation creates an invisible rectangle around the legs.

When the robot takes its first step, raising its leading leg from the ground, it must shift its weight onto its standing foot in order to maintain a stable centre of gravity. The problem is that by tilting its body over the standing foot, it momentarily causes the rectangle formed by the roll axes to become a parallelogram. With both legs the same length, the angle makes it impossible for the robot's extended leading foot to reach the ground in front of it, so the standing leg bends to close the gap. The

repetition of this process is what causes the crouched staggered gait that Takahashi says reminds him of an elderly person or someone with a bad back.

SHAPE-SHIFTING

Takahashi wanted to find a way to allow his robots to keep their standing leg straight during each step, so began addressing his robots' basic leg structure. By widening the gap between his robot's hip joints, and angling these slightly inward he found he could give each leg a diagonal roll axis.

The triangular formation comes into play when the leading leg is lifted, as the tilt caused by the robot shifting its weight onto its standing leg does not cause the leading foot to be stranded in space on the ground ahead, but actually brought into a line perpendicular to the ground. With the standing leg stretched at a diagonal, the leading leg's perpendicular roll axis becomes the shorter of the two, and so can more easily reach the ground as it moves forward, ready to take the weight for the next step.

SHIN-WALK'S VALUE

When Takahashi invented SHIN-Walk, there were already a great many bipedal robots that were highly advanced yet still hadn't addressed the issue of their unnatural gait. Takahashi attributes this in design principles he sees between himself and many mainstream robotics companies. He suggests that as robots were being developed that could walk fast, carry heavy loads and perform other impressive practical tasks, the realism of their motion was put to one side. He prefers to approach robots from a more human standpoint, seeing their potential as a bridge between man and machine, one that is furthered the more realistic they are. He felt it was crucial that the issue of realistic motion be addressed. SHIN-Walk first appeared with Takahashi's robot Chronio, and he patented it shortly afterwards. He continues to use it in his robots, including Robi.

TAKAHASHI'S SHIN-WALK

BENT LEGS
From the side, it is possible to see the cause of the conventional robot's bent-over walking style: with the robot's leading leg lifted from the floor, its body weight rests on the standing leg. However, with both legs straightened, a gap is formed between the leading foot and the floor, meaning that the step cannot be taken safely. Instead, both legs must bend to allow secure contact with the floor to be made.

ROLL AXES
From the front, the issue of the leg's roll axes is seen: the legs, hips and feet form three sides of a rectangle, and this rectangle turns into a parallelogram when the centre of gravity shifts towards one foot. In this formation, it is impossible for both legs to be straightened during a stride.

TRIANGLE
SHIN-Walk angles the hip joints inwards so that the legs' roll axes run along a diagonal, creating an inverted triangle shape rather than a rectangle. Now, as the weight is shifted onto the standing leg, the leading leg is brought to the floor in a stable, perpendicular line, rather than moving away from one.

Links of Interest

See Robi in action
https://www.youtube.com/watch?v=RPjlJKRa7Uw

Interview with creator Tomotaka Takahashi
https://www.youtube.com/watch?v=i8X1LGnMNMk

Media interest

Wired
http://www.wired.co.uk/magazine/archive/2014/02/play/kit-built-buddy

gizmag
http://www.gizmag.com/robi-robot-magazine-subscription/24964/

fusion
http://fusion.net/video/103556/meet-robi-the-worlds-cutest-robot/

Future of Robots: Five things you should know about AI
http://www.electronicsweekly.com/news/manufacturing/future-of-robotics-five-things-you-should-know-about-ai-and-robot-2015-07/

Meet Robi: The Cutest Robot Ever That Could One Day Replace Your Smartphone
http://wereblog.com/robi-robot-by-robo-garage

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