


Requests for Collaboration

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Research Interests	
<ul style="list-style-type: none">● Autonomous mobile robot used in a living environment● Legged robot which can be used in various environment● Mobile manipulator cooperating with human	
Creative Achievements in The Application of New and Existing Science and Technology	
<p>(1) A technique for automating the Image-Information-Added Map, a mapping method for photographing an object at a required resolution, is proposed. The picture shooting vector indicating the angle for taking a picture with sufficient resolution is defined according to the shape of the object surface, and a robot automatically acquires pictures by checking the picture shooting vector.</p> <p>(2) In robotics, a walking through motion is complex because of the presence of multipoint contact objects in the walking environment of a robot. To simplify the walking through motion of a robot, a virtual impedance field is implemented to the contact points of the robot and an object so that the robot avoids the object passively. The optimization of the multipoint contact walking through motion of a robot is finally achieved by evaluating the walking motion while encountering complex obstacles.</p> <p>(3) In proposing variable nonholonomic constraint for cooperative human-robot handling, we deal with nonholonomic wheel movement manipulated intuitively by the use. We propose implementing virtual nonholonomic constraint in robot grasping, enabling users to transfer objects, similar to using a wheelbarrow, without slipping.</p>	
Technology (Product, Process, Device, Service etc.) That I Want to Request for Collaboration	
<ul style="list-style-type: none">● Small and light weight actuator built in the robot frame● Manufacturing technique for light weight and high stiffness robot frame	
A List of 5 Key Publications	
<ul style="list-style-type: none">• Automating the appending of image information to grid map corresponding to object shape, T. Takubo, H. Takaishi, A. Ueno, <i>Journal of Robotics and Mechatronics</i>, 29(4), 313-319 (2017).• Collision Avoidance Using Contact Information with Multiple Objects by Multi-Leg Robot, T. Takubo, K. Kominami, K. Ohara, Y. Mae, T. Arai, <i>Journal of Robotics and Mechatronics</i>, 28(1), 6-16 (2016).• Model-Based Footstep Planning Method for Biped Walking on 3D Field, D. Kobayashi, T. Takubo, A. Ueno, <i>Journal of Robotics and Mechatronics</i>, 27(2), 156-166 (2015).• Impressions of Humanoids: The Development of a Measure for Evaluating a Humanoid, H. Kamide, T. Takubo, K. Ohara, Y. Mae, T. Arai, <i>International Journal of Social Robotics</i>, 6(1), 34-44(2014).• Adaptive Gait for Dynamic Rotational Walking Motion on Unknown Non-Planar Terrain by Limb Mechanism Robot ASTERISK, C. Theeravithayangkura, T. Takubo, K. Ohara, Y. Mae, T. Arai, <i>Journal of Robotics and Mechatronics</i>, 25(1), 172-182 (2013).	