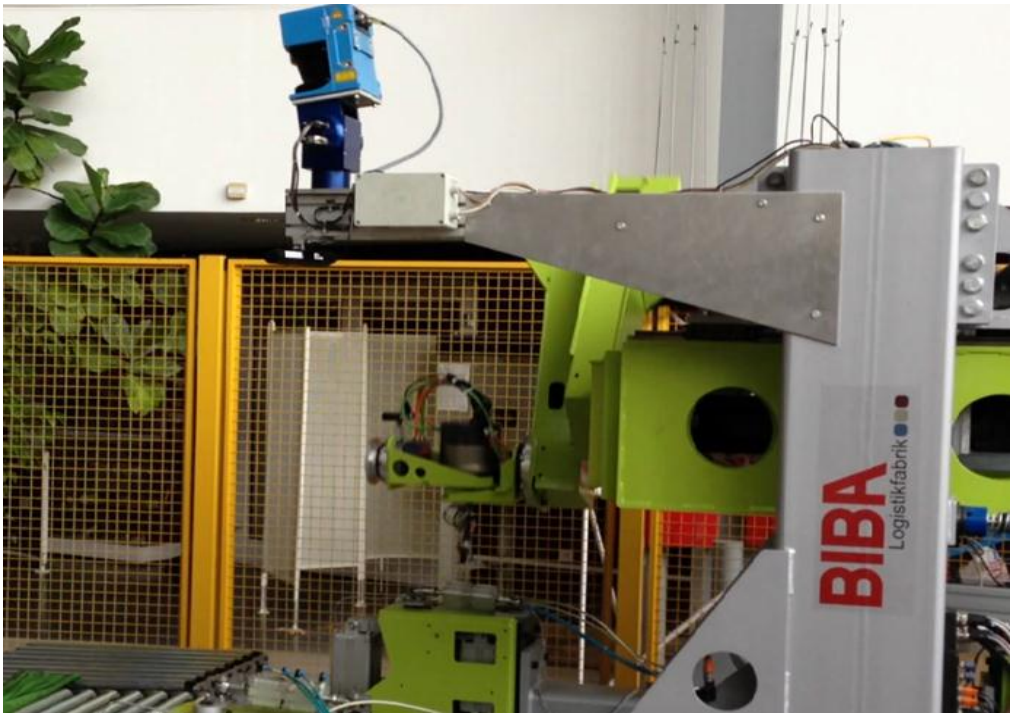

RobLog Newsletter

April 2013

DEVELOPMENT OF A COGNITIVE ROBOT FOR UNLOADING IN LOGISTICS

IN THIS ISSUE

There's a First for Everything

by Teresa Wesley

Welcome to our very first newsletter! This concise, tri-yearly, in-house publication will serve as a collective source of information regarding the RobLog project up-to-date, as well as future work plans. Because of the distances between all of us, the intention is to keep **all** team members informed of the **entire** project, as well as the personnel within. If you have suggestions, please send them directly to: Teresa.Wesley@reutlingen-university.de. I'm happy to hear them, and take their implementation into consideration.

October Meeting and Deliverable 3.2

bv Teresa Weslev

As you may have heard, October started out with a group meeting taking place at BIBA in Bremen, Germany. In attendance were team members from BIBA, Oru, Jacobs, and HSRT. The key focus of this two-day meeting was to hone in on the Parcelkernel's communication, view the Parcel Robot "as is" while considering a feasibility "wish list", and to plan future work taking place up to milestone 3. The meeting was a success, forging collaboration between BIBA, Oru and Jacobs with regard to software development specifically for motion planning in collision-free environments and determining positions of the camera with respect to the objects.

Daniel Canelhas and Todor Stoyanov of Oru remained in Bremen for one month to collaborate on-site efforts with the BIBA and Jacobs teams. A direct result of their extended stay produced the integration of the RobLog perception in the Parcelkernel with the Parcelkernel generating a planned path and transferring this data to the robot. *(continued on next page)*

Important Dates

Google Calendar

Please check the Google Calendar for pertinent dates.

*Pre Review Internal Meeting – Feb. 6/-8

*Review Meeting INTERNAL – April. 15

*Review Meeting – April. 16 - 17

(*continued from Page 1)* The robot moved to the good, gripped it and transported it to a laydown position. This scenario is viewable in the video and described in Deliverable 3.2. It will be shown during the review to all attendees as well. For reference, you may view the video at:

Media/Videos&photos/parcel_robot_calibration_version1.ogg

Deliverable 6.2

Compiled by: Teresa Wesley

On Friday, February 1, 2013, Deliverable 6.2 was delivered. This deliverable gives an overview and a description of the working software interfaces as they are for the RobLog-System at the current state. The different modules of the system – as described in Deliverable 6.1 – have to be connected which each other and to be interfaced. Some components of the system are embedded in ROS whereas other components are standard industrial parts controlled by a PLC or software running on a windows computer. In order to combine the different modules to a running system, each module has to provide interfaces to send and receive information. This task was completed by compiling the expertise mainly from BIBA, Jacobs and PISA and proved to be a lot of integration. A total of seven controllers were integrated into the "working software interface". Three controllers alone came from the ParcelRobot, and then one respectively from each of the following parts: the gripper, the Empticon, the RGBD and the Actuated Laser Scanner.

Until the end of the project, the complexity and the amount of information will increase consistently. Therefore the deliverable only exposes a percentage of information, since to date, not all modules are already developed. The purpose of the deliverable is to use it as a base for a continuative documentation of the module interfaces and information exchange. The description of the interfaces is done in external documents attached in the appendix of this deliverable and will be enlarged and modified independently during the project. Please read Deliverable 6.2 for further and complete information.

New to Our Team

by Teresa Wesley

Alexander Hauberg Andersen of Qubiqa

Alexander Hauberg Andersen joins the team as an Electro/Mechanical Engineer at Qubiqa. He comes recently from a similar position at TOP-Link – Denmark. He will be contributing work to the RobLog Project predominantly under WP6.

Daniel Canelhas of Örebro

Daniel Canelhas joins the team as a PhD student at Örebro University. He recently completed his Master's degree in the field of Robot 3D Perception in June of 2012. Previous to that, he worked for five years as a Mechanical Design Engineer at Alstom Grid. Daniel is contributing work in the RobLog Project predominantly under WP3, WP4.

Tobias Fromm of Jacobs

Tobias From joins the Team as a PhD student at Jacobs University. He previous background includes work as a Research Assistant at both the Ravensburg-Weingarten University of Applied Science in Weingarten, Germany and also at the Utah State University in Logan, Utah, USA. Tobias is contributing work in the RobLog Project predominantly under WP3, WP4, WP5.

Christian Müller of Jacobs

Christian Müller joins the team as a student from Jacobs University.

Rafael Mortensen Ernits of BIBA

Rafael Mortensen Ernits joins the team as a Master's Student at the University of Bremen.

New Publications

Oru

Stoyanov, T., Magnusson, M. and Lilienthal, A. J. (2013), Comparative Evaluation of the Consistency of Three-dimensional Spatial Representations used in Autonomous Robot Navigation. J. Field Robotics, 30: 216–236. doi: 10.1002/rob.21446

Todor Stoyanov, Rasoul Mojtahedzadeh, Henrik Andreasson and Achim J. Lilienthal. Comparative Evaluation of Range Sensor Accuracy for Indoor Mobile Robotics and Automated Logistics Applications. Robotics and Autonomous Systems (RAS), to appear 2013.

HSRT

Harry Halfar, General Purpose Inverse Kinematics Using Lookup-Tables. The paper becomes section 9.1.of deliverable 5.1.

CONFERENCES, SEMINARS & WORKSHOPS

Upcoming

IMRA 2013 International Conference International Management Research Academy. Marco Bonini's extended abstract was accepted and he was invited to present the full paper in May in Zagreb, Croatia. "Risk and Quality Management in Integrated International Research Projects: the RobLog Plan-Do-Check-Act innovative approach"

Previous

FEB 2013 IEEE (ICIT) International Conference on Industrial Technology, Cape Town, S.Africa. Harry Halfar presented his paper *General Purpose Inverse Kinematics Using Lookup-Tables.*

WP8 – Wolfgang Echelmeyer

by Teresa Wesley

As a result of the review of the first period the first version of Deliverable 1.1 has been rejected by the reviewer. As they correctly pointed out in the technical review report, the only thing which was clearly specified in the first (and rejected) version of Deliverable 1.1 were the test cases, while no clear specification about the hardware, software functionality, synergies (between the two demonstrators) and no evaluation criteria were given. The lack of clear specification was reflecting the problems encountered by the consortium in finding a common base for the targets to be set, as it is correctly stated in the technical review report of the first period, page 4, WP1 paragraph. Rejecting the first version of Deliverable 1.1 and pointing, both during the review and in the technical review report, the road to be followed, the reviewers have given the consortium the possibility of clearing the fog and designing a detailed roadmap for the rest of the project.

The new version of Deliverable 1.1 reflects not anymore only the target specification of the project, but also new way of intending the Project Management for RobLog.

A deeper look into WP8 – Project Management was taken, with the goals in mind being to mitigate risk, but at the same time increasing quality management. As the RobLog Project is a hybrid project between academic institutions and private business, it comes along with inherent challenges both internally and externally. From the progression of the project, the focuses for project management became three-fold: 1. to mitigate risk via the agreed to risk-management plan thus formally proposing an amendment, 2. to make the results coming from the RobLog project

transparent, and 3. to increase overall internal communication.

This new approach of the Risk and Quality management of RobLog, designed in Reutlingen, has been published in an extended abstract for the International Management Research Academy 2013 conference with the title "Risk and quality management in integrated international research projects: the RobLog Plan-Do-Check-Act innovative approach" and it will be presented in May this year under the session of "Technology and Innovation Management".

Upcoming

YouTube Channel - Roblog Reutlingen

Here we will be able to upload all finished videos to one channel, allowing more visible reach of our work.