Work Progress Report

Project Period: 2015/02/16 ∼ 2015/08/18

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Title

Developing an experimental platform for Human Robot Interaction based on human motions

1 2015/05/01-2015/05/03

Date	Content	Problems/Remarks
2015/05/01	• Google Blockly seems to be a good choice for visual programming. So read about it. • Started to integrate Blockly with the client application	
2015/05/02	• Restructuring the web inerface and managed to include threejs viewer and blockly in the app.	

2 2015/05/04-2015/05/10

Date	Content	Problems/Remarks
2015/05/04	• Managed to load properly the robot model into restructured client application • Made custom blocks for Robot behaviors, triggers, actions and priorities. Tried sample code generation from blocks • Improved code editor	-
2015/05/05	• Main program generation using APScheduler and tested for simple gesture to behavior workflow. APScheduler does not work for immediate triggers • Started trying out scriptcs which will enable running csharp programs as scripts. Made sample program. Need to incorporate automatic generation of code from the blockly program • Minor improvements and refactoring	

Date	Content	Problems/Remarks
2015/05/06	• Scriptcs - Main program generation. Made individual scripts for helper classes • Tested auto generation for a given Gesture-Behavior mapping and confirmed the execution. Works well	
2015/05/07	• Blockly csharp code generation bug fixes • Automatic code generation from the blockly. • The blockly block information is sent as JSON string to the server and the server parses the string to dynamically generate the program. Works pretty well • Support for multiple behavior execution in sequence :) • Start and Stop program from the web client • First important milestone reached :)	

Date	Content	Problems/Remarks
2015/05/08	• Created a more sleek behavior definition block. • NetMq pre-release install. Better performance and no exception occurs while application exit • Simulation of robot in the new web interface using the real joint values. Added necessary AJAX interfaces to access the joint values • Tested the behavior execution workflow with the real robot. Works just fine :) • Prepared presentation	
2015/05/09	• Localization information logger node development and testing. CSV export of the collected pose data.	
2015/05/10	• Plotting the collected localization log. Need to collect more data and perform more tests.	

3 2015/05/11-2015/05/17

Date	Content	Problems/Remarks
2015/05/11	• Lab meeting and Meeting with Mr. Vincent Berenz • Implemented Planar pose logger • Started consolidating bibliographic references for ICSORO 2015	-
2015/05/12	• Improvements to Localization module • Multiple behavior each triggered by different gestures support. Adopted Blockly xml format instead of my JSON format. Wrote XML parser to retrieve information about the behavior description	

Date	Content	Problems/Remarks
2015/05/13	• Relative localization visualization on a plane • Added motion based behavior task - meaning while executing the behavior the latest information about the human position and orientation will be considered • Client side - UI modification to enable loading saved behaviors.	
2015/05/14	• Localization parallax error debugging - still without success. • Client Side - Load/Save/Clear program.	
2015/05/15	• Documentation	

4 2015/05/18-2015/05/24

Date	Content	Problems/Remarks
2015/05/18	• Lab meeting • Documentation for conference paper • Prepare for demo	-
2015/05/19	• First year students Lab visit • Behavior description improvement. (Adding gesture counter to be used for various purposes)	
2015/05/20	• Behavior definition block modified to make it flexible • Behavior Program Parser modification. • Expression evaluator added to evaluate an expression dynamically (say boolean trigger for starting and conditional termination of a behavior)	

Date	Content	Problems/Remarks
2015/05/21	• Gesture counter support • Main program modification to support Startup/Gesture Driven/Exit Behavior • Support for execution termination logic (execute once/until a conditon/forever)	
2015/05/22	• Code Refactoring • Documentation • Skeleton display support in the web interface started	
2015/05/23,24	• New blocks added to support sample scenarios for the paper • Conference paper update	

5 2015/05/25-2015/05/31

Date	Content	Problems/Remarks
2015/05/25	• Thesis Documentation start	-
2015/05/26	• Global Symposium on Scientific Breakthroughs • Thesis Documentation	
2015/05/27	• NaoBehaviorModule execution principle modified. Capability to add parameters while calling a behavior • Testing	
2015/05/28	• KinectEx library integration which includes joint smoothing. added joint angle field to the kinect body message • Tried imitating the elbow roll angles with Nao robot by scaling the joint values • Prepare the ros environment for Turtlebot	

Date	Content	Problems/Remarks
2015/05/29	• Nao Imitation module complete flow checked. Automated the joint values scaling and angle computation for each target joint in Nao. Still the sign of the angles are not correct. Need to check and fix.	
2015/05/30,31	• Conference paper update • Thesis documentation	