

FY05 – CLARAty Activities and Priorities

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FTE Cost \$250K

The following is a list of activities that CLARAty will be pursuing. These items are listed in order of priority with the highest priority items listed first.

#	Description	For	Priority	Time (FTE)		Dollar Allocation		Lead
				FY05	Total	FY05	Total	
1	Encapsulated version of MER GESTALT R9.0 with bug fixes from R9.1 working with ROAMS simulation and later with FIDO rover (after FIDO upgrades)	MSL	1	6	10	\$125K	\$208K	M. McHenry (E. Gat - former)
2	Tracking from all rover-based cameras (panoramic, navigation, hazard) with hand-off among all pairs. The latter will involve both kinematic and image-based techniques for camera hand-off (includes ARC mesh registration)	MSL	2	7	9	\$146K	\$188K	R. Madison (M. Bajracharya)
3	Support for Moonrise manipulation demonstration	SOOPS	3	5	5	\$104K	\$104K	A. Diaz
4	Long-range navigation (with obstacle avoidance) running with the ROAMS simulation and the Maestro interface	SOOPS	4	3	10	\$63K	\$208K	I. Shu
5	Update development process and setup nightly build system	All	5	3	6	\$63K	\$125K	B. Sapir
6	Rover pose estimation with 6DOF Extended Kalman Filter (includes visual odometry, sun sensing, full-DOF kinematics, full-DOF IMU integration)	MSL	6	6	10	\$125K	\$208K	D. Gaines
7	Training new personnel on CLARAty and rovers	All	7	12	30	\$250K	\$625K	4 people
8	Lander-based sampling with the ROAMS simulation and Maestro	SOOPS	8	5	5	\$104K	\$104K	A. Diaz/New hire
9	Refilm the FY04 integrated milestone (tracking, navigation, etc)	MTP	9	3	5	\$63K	\$104K	W. Kim
10	Review and merge camera control software and update all adaptations. Test on Rocky 8 and FIDO	All	10	2	2	\$42K	\$42K	J. Guineau
11	Review, update, and document APIs for math and transform infrastructure (matrix, rotations, transforms, quaternions, points, etc)	All	11	4	4	\$83K	\$83K	I. Nesnas C. Kunz
12	Converge all work in motion control and add motor groups. Update and test all adaptations on Rocky 8 and FIDO	All	12	8	12	\$167K	\$250K	I. Nesnas
13	Review and develop new mechanism model. Adapt all rovers to use new model	All	13	12	12	\$250K	\$250K	H. Nayar
14	Update and simplify all locomotion and manipulation control to use updated motion control software. Update all adaptations to use updated software. Test on Rocky 8 and FIDO	All	14	5	5	\$104K	\$104K	A. Diaz
15	Develop robust test infrastructure for all core modules	All	15	24	24	\$500K	\$500K	TBD
16	Support for RoverWare and Maestro teams	MTP	16	2	3	\$42K	\$63K	I. Shu
17	Improve CLARAty inline documentation	All	17	12	15	\$250K	\$313K	I. Nesnas/ T. Estlin
18	Generalize and test encapsulated Drivemaps on FIDO	MSL	18	4	8	\$83K	\$167K	R. Simmons
19	Support JTARS effort	Code T	19	4	4	\$83K	\$83K	TBD
20	Develop real-time requirements for robotic platforms	Code T	20	6	6	\$125K	\$125K	W. Kim
21	Adaptation of CLARAty to MAX low-cost platform	DRDF	21	1.5	1.5	\$31K	\$31K	B. Sapir
22	Support CLARAty on Aerobots estimation work	MTP	22	1	1	\$21K	\$21K	D. Gaines
23	Support for Athlete	Code T	23	0	0	\$0K	\$0K	
Total						\$2,646K	\$3,729K	