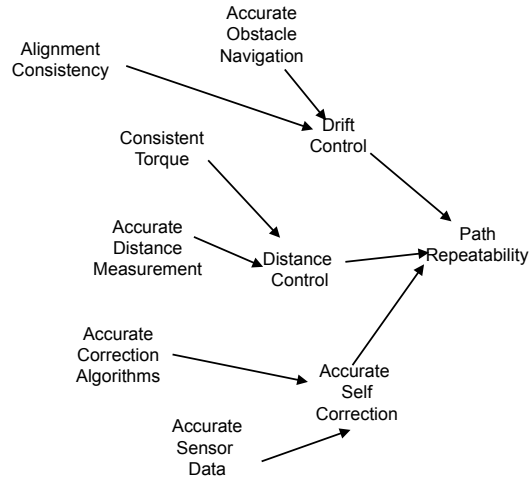


Problem Statement / Opportunity: Our current locomotion system cannot control motion precisely enough to support transect mapping.

Current State and Root Cause Analysis

Path repeatability error for the OFCD robot is 10mm over 1 meter. Transect mapping requires the robot to accurately navigate a straight path around obstacles for 25 meters which lowers the allowable path repeatability error to under 5 mm over one meter.



Alternatives Considered: List the major options you considered, and the criteria you used to make your recommendation.

Criteria	Leg System	Wheel System	Ski System	Tread System	OFCD Locom.
DM Cost	+	-	+	+	0
Manufacturability	0	+	0	+	0
Align Consistency	+	0	+	++	-
Torque Consistency	++	-	-	++	-
Distance Measure.	++	+	--	0	-
Obstacle Nav	+	0	-	+	-

Recommendation:

Current recommendation is to drop the OFCD and ski systems from consideration and proceed to model the leg, wheel and tread systems. The next phase of evaluation will determine which of these three options delivers consistent alignment, torque and distance measurements in ocean floor conditions.

Future State:

To Be Determined

Issues: What challenges will you have to overcome?

Issue	Owner	Status	Proposed Resolution
Tank system can't handle tread, leg tests	Susan	Resolved	Funds allocated for new testing tank floor.
Leg system materials supplier contract	Jim	Assigned	Get waiver from legal to sole source.

Klickitat Locomotion System

Katherine Radeka and Locomotion Team, 503-791-3945
katherine@whittierconsulting.com

Resources Required:

3 FTE from Locomotion for 6 months.

\$45,000 for prototyping and validation.

Next Actions: If the proposal is accepted, what happens next?

Action	Owner	Due Date
Build scale models of leg systems	Doug	11/30/06
Build scale models of wheel systems	Caroline	11/30/06
Build scale models of tread systems	Earl	11/30/06
Finish Test Tank Floor	Susan	11/30/06

Project Metrics: How will you know that your project has succeeded?

Metric	Target	Actual
Path Repeatability Error	< 5mm / meter	
Field Failure Rate for locomotion system	< 5% in first three years	
Service Interval for locomotion system	> 200 hours	
DM Cost of locomotion system	< \$12,000	

