Cooperative Mining Robots Detailed Design Document

<table>
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<th>ISSUE RECORD</th>
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  This document provides the detailed designs for each functional block diagram. | All | March 9, 2004 |
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Navigation Functional Block Detailed Design

Diagram showing the flow of data and processes, including:
- Map File
- Robot Movement Completion
- Destination File
- Robot Position File
- Send Debugging File

Output to C.C.

Update Location on Map
Send Position Update
Move Forward
Move Left
Move Right
Turn 180 Degrees
Idle
Send Robot Update

Input from C.C.
Input from M.C.
Input from Wireless
Motor Control Functional Block Detailed Design (H-Bridge)
Central Control Functional Block Detailed Design and Combined Navigation Functional Block Detailed Design
Power Functional Block Detailed Design

- 2-pin molex
- To Battery Charger

- Battery Charger Switch will have position indicator
- Main Circuit Breaker current TBD
- To Central Control/Navigation

- Over Current Alarm Circuitry (trip voltage TBD)

- Motor Control DC to DC Converter voltage TBD
- Low Voltage Alarm Circuitry (trip voltage TBD)
- To Central Control/Navigation

- Central Control/Navigation DC to DC Converter voltage TBD

- Central Control/Navigation Circuit Breaker current TBD

- To Battery Charger

12V