

System Requirements

- R000 A maximum of four [4] robots shall *cooperatively* mine ping-pong balls from a multiple chamber mine.
- R001 A supervisory station console shall monitor all robot activity, receive all robot failure alarms, and provide robot work assignments.
- R002 Primary navigation throughout the mine shall be provided by a sensor path beneath the robots.
- R003 Bidirectional overhead infrared communication links shall support two [2] one hundred [100] byte messages to and from each robot each second.
- R004 Communications shall be supported robot-robot and robot-console from all locations in the mine.
- R005 A maximum of thirty-two [32] of maximum ten [10] foot radius infrared networked communication cells shall support all communications.
- R006 One or more robots may exist in each communication cell.
- R007 Secondary navigation shall be provided by the infrared communication cells.
- R008 Robots shall be implemented on a customer-provided robotic chassis comprised of a drive train and mining implements.
- R009 A mining mission shift shall be four [4] hours.
- R010 A single voltage rechargeable source shall be provided for each robot.
- R011 Given the mission criticality and environment, maintenance activities on robots shall be deferred to the end of the shift.
- R012 Robots shall safely interact with other robots, non-robots and their environment.
- R013 The design of the system shall be manufacturable.