

Functional Clock Requirements

F000 Every block can pass its internal information to central control for debugging

F001 Supervisory Station

- F001.00 Receive any error or failure alarms from robot
- F001.01 Send work tasks (keep track of clock and time)
- F001.02 Receive robot location
- F001.03 Interact with wireless communication
- F001.04 Request and receive management data
- F001.05 Keep track of completed tasks
- F001.06 Controls the start and stop time of a shift
- F001.07 User I/O

F002 Wired Communication

- F002.10 Communication from supervisory to each zone
- F002.11 Communication from zone to zone
- F002.12 Each node needs to be specially addressed
- F002.13 Able to communicate and bridge with wireless (Tx, Rx)

F003 Wireless Communication

- F003.20 Allow Tx, Rx between ceiling nodes to robots
- F003.21 Able to communicate and bridge with wired
- F003.22 Each node and robot needs to be specially addressable
- F003.23 Branch data with central control on each robot
- F003.24 For robot to robot communication, the steps for communication need to be as follows: robot – ceiling – robot

F004 Navigation

- F004.30 Accepts destination commands
- F004.31 Get position from wireless
- F004.32 Decide how to get to final location from current location
- F004.33 Give motor control requests for movement
- F004.34 Know map of mine

F005 Motor Control

- F005.40 Follow tape and steer accordingly
- F005.41 Take requests from navigation for major movements
- F005.42 Issue control movements specific to each motor
- F005.43 Panic Shutoff
- F005.44 Communicate with safety
- F005.45 Inform navigation of intersections, destination and completion of assigned tasks
- F005.46 Determines speed of motors
- F005.47 Informs power management of power usage