“Seconds From Disaster” Pseudocode

Central PIC

Main

Initialize pins and ports
Initialize Xbee asynchronous communication
Initialize synchronous communication as master with multiple slaves
Enable interrupts
Run state machine

State

If initializing teams,
    Respond to new RFID, Xbee, Security controller event.
If playing game,
    Respond to new RFID, Xbee, Security controller event.

RFID PIC

Main

Initialize pins and ports
Initialize RFID asynchronous communication with RFID reader
Initialize synchronous communication
Enable interrupts

Interrupt Response Routine

If asynchronous receive, read the message and save it in a 14 character ascii array. Then, convert it into an 8 unit hex array and raise appropriate synchronous trigger.
If asynchronous transfer is clear and there is a message to send, send next byte of message in array
If synchronous buffer full, read and send a message

Security PIC

Main

Initialize pins and ports
Initialize security asynchronous communication
Initialize synchronous communication
Enable interrupts
Run state machine to send and store appropriate messages and raise appropriate synchronous trigger

Interrupt Response Routine

If asynchronous receive, read the message and save it in array
If asynchronous transfer is clear and there is a message to send, send next byte of message in array
If synchronous buffer full, read and send a message

Motor PICs

Main

Initialize pins and ports
Initialize synchronous communication
Enable interrupts
Run state machine to respond appropriately to Xbee motor messages. If no message received for a while, stop motors.

HC PIC

Main

Initialize pins and ports
Initialize Xbee asynchronous communication
Run state machine

State

If hat is on, tell user to remove hat.
If hat is off and event occurs, display appropriate information on LCD