ILJ Club Minder Operation

The system must do the following:

The system has two components. They are the transmitter and the receiver. The transmitter is powered by a rechargeable battery which is charged by the dry cells in the receiver.

The system has three modes of operation. One occurs during the time that the two units are joined together. The other two occur during the time that the two units are apart.

At the moment in time that the two units are joined, the receiver captures the 8 bit value from its real time clock and stores it as its random ID Code. It then attempts to transmit that code to the transmitter and receive the proper confirmation. It beeps once to signify proper connection.

During the time that two units are joined, the receiver periodically transmits the ID Code to the the intercom line and receives confirmation from the transmitter, thus confirming the connection. Each unit powers down its RF system and consumes minimum power. The transmitter battery is charged from the receiver battery.

Right after the two units are separated, the transmitter waits one intercom pulse interval and then executes its first transmission to the receiver. The receiver looks for the transmission, and upon receiving it, beeps twice to signify proper operation.

During the time that the two units are separated, the transmitter must transmit its code every 10 seconds. It must not have a duty ratio greater than 1/30. The receiver is powered shortly before each anticipated reception. When a reception succeeds, the receiver's LED quickly flashes twice to provide reassurance of proper operation. If the reception fails, the receiver is left on until a reception occurs or two successive transmissions are missed, at which point the buzzer chirps once and LED light flashes repeatedly. After 10 more seconds of failure, the buzzer chirps more vehemently. If radio connection is not reestablished after 60 seconds, the receiver is turned off to conserve battery power and the unit enters a mode waiting for intercom connection.

During the time that the two units are separated, the receiver periodically attempts to communicate with the transmitter via the intercom connection. The transmitter watches for intercom communication any time that it is not transmitting RF.

Immediately after reset, the transmitter looks for 10 seconds for the receiver intercom signal. If the intercom signal is not found, then the transmitter assumes that it has been inadvertently reset and begins transmitting. If the transmitter does not have a valid copy of the identification code, then it does not transmit RF and looks continuously for the receiver intercom signal.

Immediately after reset, the receiver attempts to signal the transmitter over the intercom. If that fails then it verifies that has a valid copy of the identification code and then looks for the transmitter RF signal as if it has just missed an anticipated reception. If it does not have a valid copy of the identification code then it alarms until the maximum alarm time is exceeded and then enters a low power mode waiting for an intercom connection.