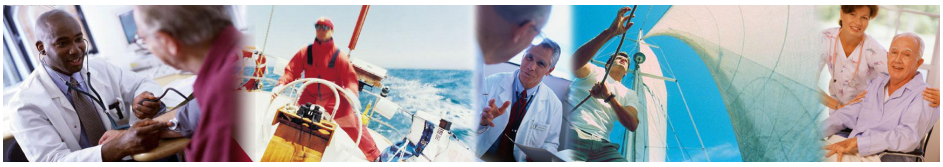

Transmitter Description

This is a brief description of how our transmitter works.

The transmitter can be broken into two sections, the digital section and the RF section. These two sections are linked together by the modulation line.

The digital section consists of a microcontroller with its own internal 32 KHz crystal and some supporting passive components. This section functions as follows:

- It sends out a modulation pulse of 32ms 50 times a minute
- It sends out a data chirp every 5th chirp that contains the ID.
    - The data chirp is a series of on and off pulses that total about 25ms in length
- The microprocessor is responsible for reading sensors

The RF section contains three stages. They can be broken into the following functions:

- The first stage contains a crystal, frequency multiplication circuitry, and frequency alignment circuitry
    - We multiply the fundamental frequency of the crystal in this stage by three
- The second stage contains a small amount of amplification and a feedback circuit that compensates for frequency drift with temperature variation
- The third stage is where the signal gets amplified. This stage is a also the stage that is controlled with the microcontroller's modulation line

There is a final section of the circuitry that matches our antenna's 50 ohm load with the output of the third stage. That is a Locator Systems transmitter.

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