1 Ultrasonic

We make the ultrasonic sender and receiver by modifying existing ultrasonic range finder in the following ways:

1.1 Sender

To use an ultrasonic range finder as a beacon, simply trigger it at a desired interval, ignoring any response from the range finder. The highest possible trigger frequency is 30 Hz.

1.2 Receiver

The ultrasonic range finder will not give any response if not triggered first. We don't want to trigger it, because if we trigger it, it would send out an ultrasonic burst of its own, which could interfere with the bursts from the beacon. We worked around this problem by tapping into the receiver on board the range finder. An abstracted diagram of the range finder schematic is as follow:
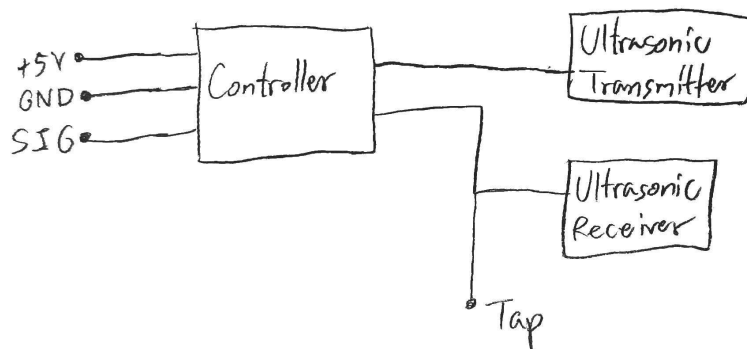

Figure 1: Tapped

The tapped signal is then fed to a comparator, then feed into a GPIO pin of the Buckler
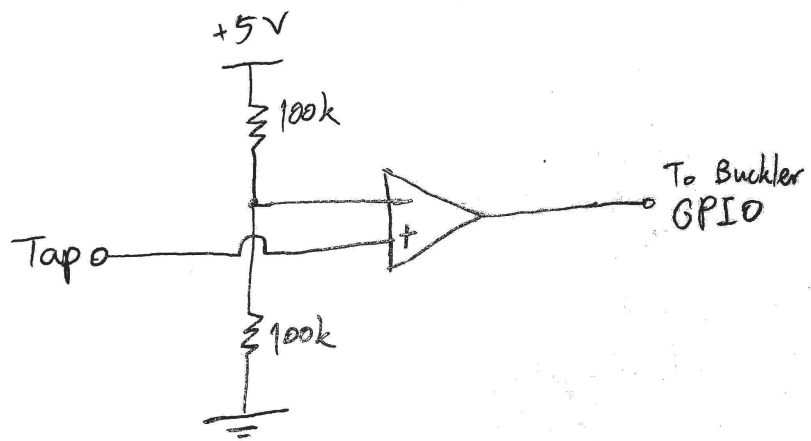
Figure 2: comparator