In receiver-initiated medium access control (MAC) protocols for wireless sensor networks, communication is initiated by
the receiver node which transmits beacons indicating its availability to receive data. In the case of multiple senders having
traffic for a given receiver, such beacons form points where collisions are likely to happen. In this paper, we present
altruistic backoff (AB), a novel collision avoidance mechanism that aims to avoid collisions before the transmission of a
beacon. As a result of an early backoff, senders spend less time in idle listening waiting for a beacon, thus saving
significant amounts of energy. We present an implementation of AB for Texas Instruments’ eZ430-rf2500 sensor nodes
and we evaluate its performance with simulations and experiments.