

RFID options for the Door Widget

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RFID is one feature that I am really excited to try and implement in the design of the Door Widget. I believe that it will soon be a feature of most home security systems, and to produce a module that includes it for THAT System will make it highly competitive.

My original goal was to design a wireless dongle allowing the user to lock or unlock their home (much like car key chain dongles). I decided against this because I : 1.) felt that having a wireless remote capable of being sniffed by neighbors was insecure, 2.) did not want to design my own remote (outside of the scope of this project), and 3.) did not like the third-party remote options (e.g. the [KeeLoq](#) “key hopping” encoder system which was broken in 2008).

RFID has potential security issues as well. I think that designing a product that makes use of RFID tags which transmit their IDs unencrypted would be irresponsible. Luckily, there appears to be new forms of RFID transponders, such as Atmel’s [CryptoRF](#) series, which implement challenge-response authentication and therefore never reveal their ID over an insecure communication channel. These high frequency (13.56MHz) transceiver ICs do not appear to be available individually yet, however.

Other RFID reader chips, such as the Melexis MLX90109 transceiver (Fig. 1) are available from Digi-Key singly. They are rather expensive (\$10 in quantities of one) and are only available in 8-SOIC, not DIP. This is not a deal breaker, however. I could just deal with it, or purchase a SOIC-DIP adapter.

A really neat alternative to a dedicated reader IC is to build one out of a microcontroller (along with a few other components). Two students at Cornell did just this for their RFID [Proximity Security System](#). I may end up using a method similar to this.
