

DORM ROOM RFID LOCK

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Why did I make this?

This project came about when I started my college life as a freshman at Kettering University. Using a key to lock/unlock my room became bothersome as I was always in a rush in and out of my room. I decided to build a custom circuit (preferably cheaply) that would read RFID (radio frequency identification) cards through my door and rotate the lock. I also wanted the door to automatically lock when it was closed. Keeping all of this in mind, I also had to make it easily removable for when I moved out. This is my solution to that problem.

Components

Servo (\$10)

The servo is the small black box with the rotating end sticking off of it. This can be attached directly to the door lock using only zip ties and double sided sticky tape as seen above.

Magnetic Proximity Sensor (\$2)

This is the small round black rod that is attached to the edge of the door. A magnet is placed on the door frame, which tells this sensor that the door has closed. When this signal is received, the door automatically locks itself.

Circuit Board + Components (\$20)

This is the custom designed circuit board that I will be publishing the source files for. Anyone will be able to make their own RFID door lock using this circuit board and a few cheap components. The software I wrote is written to the microchip that is located on this circuit board.

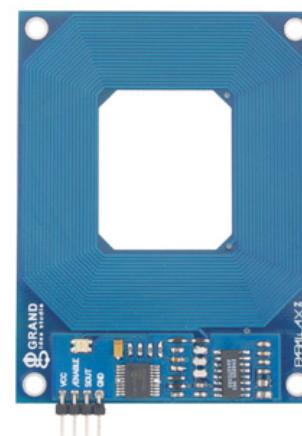
Components (continued)

Release Button (\$2)

This button is located on the inside of the door. When this button is pressed, the lock will unlock the door so an RFID card is not required to leave the room.

Card Reader (\$40)

This is a Parallax RFID reader (pictured below) that actually reads the card wirelessly (through the door!) and verifies if the presented card matches the unique code required to unlock the door.



Software (Open Source!)

Soon to be released as open source on ttjcrew.com, this is the software that actually compares the presented RFID card with the stored unique key value. It reads the proximity sensor, release button, and controls the servo on the door. For the geeks, this is written to an ATTiny2313 microcontroller. The code is standard C.