

## **Invention Title**

IoT Smart Hotel Lock

## **Invention Summary**

This invention describes a 'smart' hotel lock/door blocker to integrate with IoT platforms.

**Invention Description** Hotel locks and door blockers have been around for some time, and have been shown to be more effective than deadbolts in preventing burglars from kicking in the door. However, one drawback of current systems is that they must be set from inside the house, and cannot be unlocked externally. This means that at least one door cannot be so protected when a homeowner leaves. Also, should a homeowner forget to unlock the hotel lock, it is virtually impossible to unlock from the outside (e.g., for children or a housekeeper) without breaking the door/frame. This invention solves the issue by attaching an IoT-enabled wireless switch to an actuator (e.g., a solenoid or servo motor) to push the hotel lock/door blocker into the locked or unlocked position remotely (such as via a smartphone app).

In one embodiment, this invention uses a push/pull solenoid attached with a flexible cable to the hotel lock. When triggered to close, the solenoid pushes the lock into position. When triggered to open, the solenoid retracts, stretching the cable and pulling the lock into the open position.

In a second embodiment, the solenoid is replaced by a servo motor such as is used for the steering mechanism in an R/C car. When set to lock, the servo motor turns clockwise, pushing a rod into the lock and pushing the lock into the closed position. When set to unlock, the servo turns counter-clockwise, pulls the rod, and opens the lock. A ratcheting mechanism could also be used to facilitate the homeowner opening the lock manually.

In either case, a sensor could be applied on the lock to detect whether it is in the open or closed position and the position could be reported in an app or web page. Also, a failsafe could be used to prevent a homeowner from getting locked out of the house. A few examples: Use directional proximity to determine if the user is trying to set the lock from outside.

If the user is outside, require two-step verification.

If the user is outside, refuse to set the lock unless you can verify that the user has the "key."

If the user is outside, verify that there is power and/or sufficient battery backup power to open the lock.

Provide a secure means to instantly "reissue" the key to an authenticated and authorized user (owner, hotel staff, etc.)

**Invention Commercial Value/Customers** The IoT market is starting to accelerate.

Companies are selling video doorbells (DoorBot) for \$200 and electronic deadbolts for similar amounts. I imagine that this invention could be sold through retail stores or as part of integrated MSO smart home offerings (e.g., Xfinity Home) for a healthy profit margin over the cost of components (est. less than \$50 at qty 1). This could also be sold into the hotel market to help with firefighter and paramedic access to guest rooms.

**Invention Differences** Hotel locks and door blockers on the market are manual, and not enabled for IoT. Existing IoT door locks tend to be either deadbolts or integrated with door handles. I have not seen any IoT hotel locks (or I might be tempted to buy several).