

Smart
GARAGE
Alarm Sensor

SMART GARAGE ALARM SENSOR

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The problem

- Typical home garage gates can be easily forced open by intruders
- Garages are 4th most common entry points for burglars (after front and back doors, and first floor windows)
- Homeowners typically store many valuable tools, sensitive documents, and sometimes even electronics in their garages
- The door between the garage and home is typically left unlocked allowing an easy entry for potential intruders once they are in the garage

- Installing a typical alarm sensor in the garage is inconvenient to residents because:
 - Short alarm siren activation delay requires the residents to run out of the car and turn off the alarm every time they come back home
 - When leaving, the resident may be required to drive out of the garage and walk back home to arm the alarm system
 - Increasing the alarm activation time delay decreases deterrent factor of the alarm siren. 2 minutes is more than enough to steal valuables from the garage and run away before an alarm siren activates
- For those reasons homeowners typically decide to leave their garages unprotected

The solution

- Only the residents and authorized individuals can open garage gates using powered gate openers (using a wall button, a remote control, a pin-pad, etc)
- The easiest and most universal way to sense the activity of every garage opener is to measure how much electrical current it draws
- A smart alarm sensor sensing garage opener activity instantly and reliably detects whether the gate is opened by an authorized person or an intruder
- This innovative smart sensor:
 - ▣ Remedies all inconvenience associated with arming and disarming alarm systems when closing or opening the garage
 - ▣ Allows garage alarms to be in an always-armed state protecting homeowners day and night from intruders, not just when they are away from home
 - ▣ The siren can be programmed to activate immediately the moment the gate is forced open by an intruder increasing the deterrent factor or an alarm siren

Types of garage openers



Basic



Wall mounted



With a light

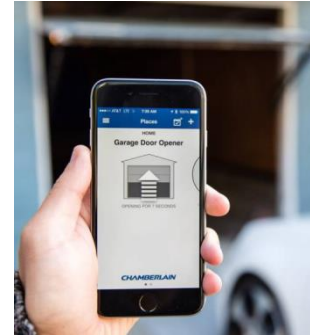


With multiple lights

Garage opener activators:



Remote controls



Cell phone app (via WiFi)



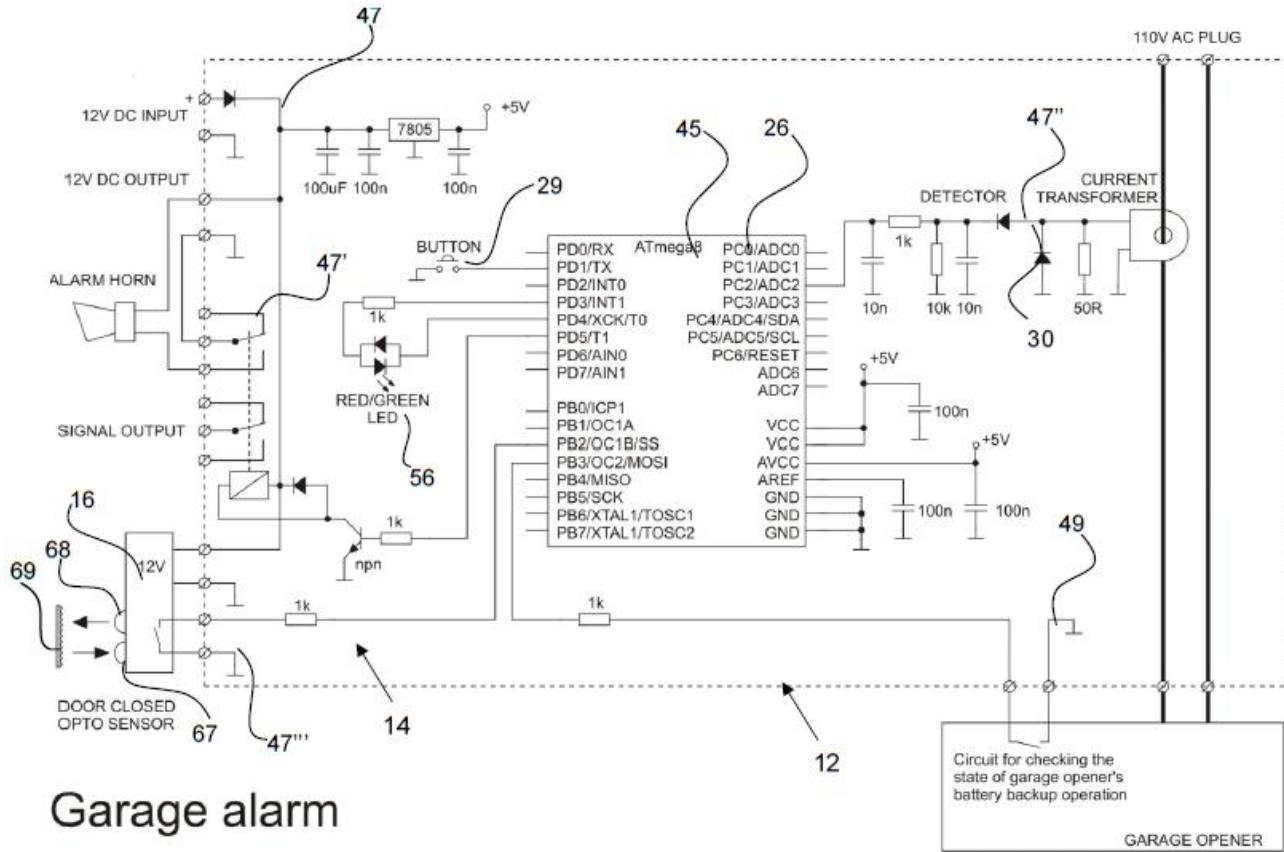
Wireless PIN pads



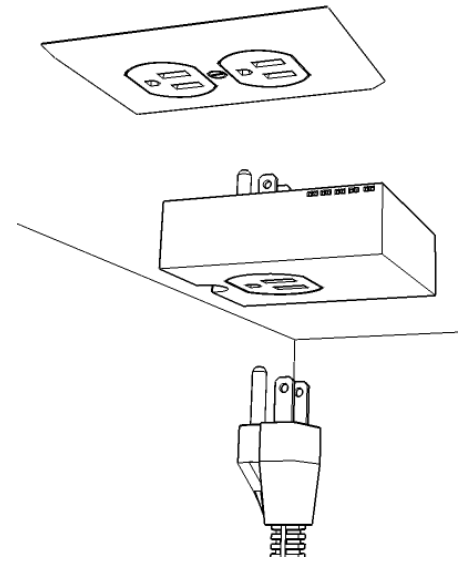
Wired buttons

Measuring electric current spike is the only method to detect garage opener activation that covers every method used to activate it

Sample electronic schematics for one of the wired prototypes of the invention

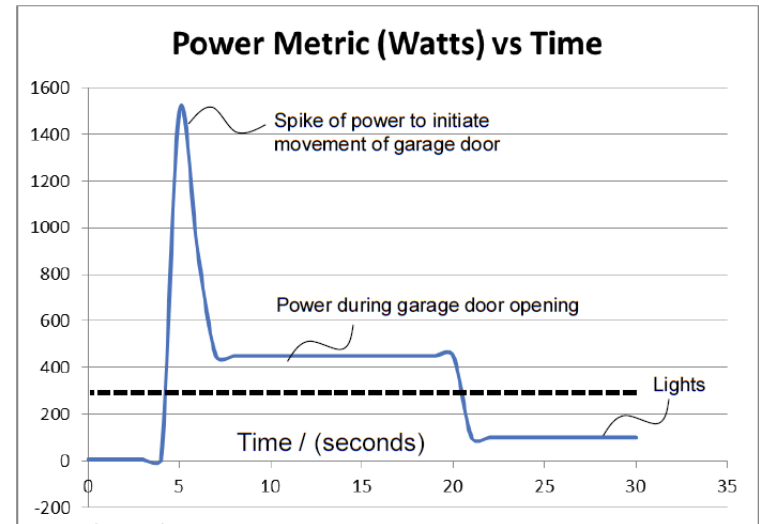


Garage alarm



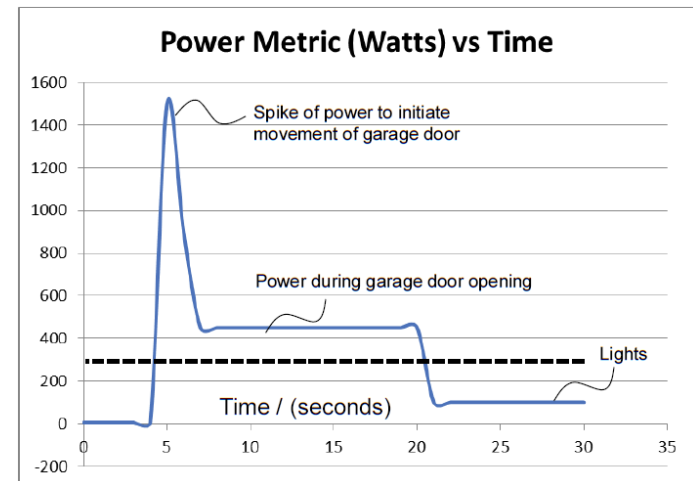
Power consumption during operation

- Garage openers use only a few watts of power when in standby mode
- Power consumption spikes for a fraction of a second the moment it is activated, then stabilizes at typically above 400 watts while the gate is being opened
- After the gate operation, the light comes on for a few minutes
- The light can be activated independently from the garage opener operation
- The light also typically comes on after a power outage/circuit breaker reset
- This smart garage alarm sensor automatically learns the threshold of current that indicates the gate opening action



The sensor power measuring characteristic

- The smart garage alarm sensor self calibrates each time after the gate closes to learn the current threshold that is needed to open the gate
 - ▣ This prevents problems when energy efficient bulbs are installed or when a light bulb burns out in the opener (dotted line)



Types of garage position sensors



Magnetic sensor



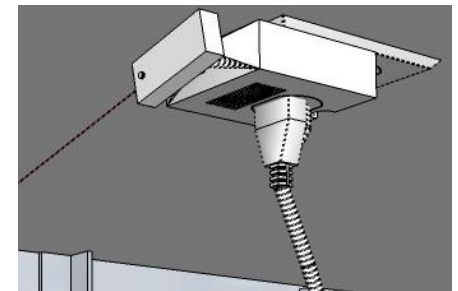
Tilt sensor



Gravity activated



Reflective beam sensor



(sensor Embodiment with
The optical beam sensor)

Other applications of this invention

- Same principle can be used in various other types of powered barriers:

