Lock your doors, please!!

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Project Design:

Our plan is to design a small device that detects if a house door is locked after it is shut. It would use sound sensor and send data to the cloud to be processed. The sensor will send the sounds it collects to the cloud and the cloud will try to figure out the sound of the door closing and the locking from all the sounds it receives. If the cloud receives the door shutting sound and doesn't receive the lock clicking sound after that within a given timeframe, say 1 minute after the door is shut, then it would send an email to the user informing him that his door is still open.

Major functions:

1. Collect sounds from the sound sensor and send them to the cloud.
2. Check in the cloud whether the sounds of door shutting and locking are received within a set timeframe.
3. If not, send a notification to the user via e-mail that his door is open.

Wireless protocol and architecture :

Wireless protocol for our project: WiFi
Architecture proposal for our project: Architecture No 2 with the sensor and cloud components.

Components

1. 1x Arduino Uno board
2. 1x Wifi Module ESP8266 board
3. 1x Developing Kit
4. 1x Vibration sensor
5. 1x SparkFun Sound Detector