

Who Ya Gonna Call? A Retrospective Study of Ghosts in a Bayesian Smart Home

Orphaned Entities, Disappearing Light Bulbs, and the Ectoplasmic Burden of Home Automation

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Abstract

Reports of intelligent-home hauntings have historically relied on eyewitness accounts, unfortunate thermostat placement, and shaky cell phone footage only to be met with vague assurances that “it only happens when I am alone.” We examine a two-bedroom Home Assistant installation of StrixHome to determine whether apparent domestic spectral activity is better explained by supernatural agency or software objects that no longer exist. The study uses a retrospective, single-residence design combining owner-reported Spook integration findings (2025–2026), a dated systems inventory (1,687 active-state entities; 63 automations), and incident records of intermittent smart-light availability. We introduce the Spectral Entity Misidentification Protocol (SEMP), under which a “ghost” is operationally defined as an entity identifier repeatedly addressed by an automation despite its absence from the entity registry. The case series includes a deceased weather endpoint, a departed Apple TV, seven medication-log callers addressing a non-existent notifier, and a missing reminder timestamp helper. Separately, the front-door and laundry lights experienced short, documented connectivity gaps, providing an excellent visual imitation of poltergeist behavior without evidence of one. All observed hauntings were compatible with ordinary software or transport mechanisms; zero ectoplasmic packets were independently verified. We conclude that the contemporary smart home can be haunted by its own configuration, and that an exorcism usually begins with a careful read of the YAML.

Keywords: Home Assistant; Spook; ghost detection; orphaned entities; Bayesian occupancy; smart lighting; supernatural null hypothesis

1. Introduction

The haunted-house literature suffers from a severe instrumentation problem: investigators typically arrive with handheld electromagnetic meters, but very few bring an entity registry. This oversight is increasingly indefensible. A modern home contains many objects that announce themselves through networks, abruptly vanish, and continue to affect daily life after their owners have forgotten they existed. If that does not satisfy the ordinary meaning of “ghost,” this paper respectfully requests that the ordinary meaning be patched.

1.1 Background

StrixHome is an unusually appropriate field site. It is a Home Assistant system spanning eight areas, 35 lighting entities, four monitored uninterruptible power supplies, and a population of 1,687 active-state entities on the September 30, 2026 census [1]. Crucially, it also runs Spook, an actual

integration that detects broken references and raises repairs [2]. Unlike a traditional spirit medium, Spook supplies reproducible warnings, asks no leading questions, and can be upgraded without a séance.

Home Assistant automations respond to discrete triggers and then evaluate conditions; the system does not infer the moral character of an event [3]. A light that turns on after motion, a contact sensor, a time transition, or restored connectivity is thus operating within its design. However unsettling, this may be to an owner who has just watched a horror film.

Spook addresses the closely related concept of dangling references: configurations can continue to name entities that do not exist [2]. This is a rigorous operational definition of haunting because the referent is absent, the name remains, and the investigator can generally blame a previous occupant—usually the investigator.

1.2 Purpose

Our research question was therefore direct: when a smart home reports ghosts, are the ghosts inside the house, inside the software, or inside the systems administrator's increasingly ambitious naming conventions?

2. Methodology

2.1 Study site and evidence

We performed a retrospective observational review of dated user-reported Spook findings (November 2025 to June 2026), the September 30 systems inventory [1], and an October 4 follow-up describing October 3 device-availability interruptions [4]. No controlled paranormal experiment was conducted, and no human subject was asked to remain in a dark room for statistical significance.

The operational audit documented 2,225 entity-registry entries versus 1,687 active-state entities, a difference of scope rather than 538 confirmed apparitions. It also documented 93 integration entries, of which 89 were loaded, and no current setup-error or retry entries at the snapshot [1]. These numbers are genuine; the ghost theory attached to them is not.

2.2 Three hypotheses

H_0 (mundane haunting): all events result from configuration, sensors, timing, device availability, or network behavior. H_1 (spectral intervention): an incorporeal actor executes unauthorized actions through the automation engine. H_2 (administrator intervention): the owner has created so much automation that the system now produces spontaneous-seeming behavior as an emergent feature of competence.

H_2 is not mutually exclusive with H_0 and proved particularly difficult to eliminate.

2.3 Inferential discipline

Counts and timestamps are reported only where dated evidence exists. We computed no inferential p-values, did not estimate population prevalence from one apartment, and excluded all phenomena that might require an actual exorcist. This stringent protocol substantially reduced the publication value of the study while improving its accuracy.

3. Diagnostic Framework

3.1 Spectral Entity Misidentification Protocol

SEMP assigns an observation to one of three classes. In Type I, an automation references an entity that does not exist. In Type II, a real device temporarily becomes unavailable. Finally in Type III, correct automation logic creates behavior that a startled homeowner describes with the word "poltergeist" or other various expletives. Type I cases are

semantically supernatural but physically boring. Type II cases are temporarily absent, often because Wi-Fi is doing what Wi-Fi does. Type III cases are functioning as designed, which is arguably the most frightening category.

3.2 Haunting Index

For purposes of publication only, we define a deliberately non-validated Haunting Index, $HI = (G + U + 1)/(X + 1)$, where G denotes ghost references, U denotes availability interruptions, and X denotes independently confirmed ectoplasmic observations. Adding one prevents division by zero and, conveniently, protects the central thesis from mathematics. HI is comic notation, not a measurement scale.

4. Test and Evaluation

4.1 The case series

The following incidents demonstrate a remarkably consistent pattern: the alleged ghost can often be identified down to its exact entity ID, and that ID is the problem.

Table 1. Documented spectral presentations in StrixHome (dates refer to incident reports, not continuous surveillance).

Case	Observed evidence and non-spectral reading
The forecast ghost	Nov. 2025: a living-room automation referenced unknown <i>weather.home</i> ; an old hallway configuration retained the same absent weather name. Missing forecast entity, not a cold spot.
The departed Apple TV	Apr. 2026: a living-room media-aware automation named <i>media_player.living_room_apple_tv</i> , while the known media entity was <i>media_player.living_room</i> . A stale name outlived the player identity.
The silent notifier	May 2026: seven medication-event automations referenced an unavailable logging/notification action. The intended destination was a service, not a spirit.
The missing timestamp	Jun. 2026: a reminder referenced a helper that was not present; the helper was subsequently added. Time had not stopped; a datetime identifier was absent.
Disappearing light bulbs	Oct. 2026: front-door light unavailable 12 times (6–68 s); laundry light had 3 gaps (5–9 s). The bulbs recovered; cause was unresolved, not adjudicated paranormal.

4.2 Case A The weather that was not there

In November 2025, the living-room "Smart Welcome" automation referred to *weather.home*, a weather entity absent from the system. A hallway automation preserved the same obsolete name inside weather-related logic that was otherwise ineffective. The finding resembles a classic cold spot, with one

important difference: there was no temperature measurement and no spot. Spook identified not a meteorological apparition but a broken variable [5].

4.3 Case B The Apple TV afterlife

In April 2026, a media-aware living-room shutdown rule attempted to consult *media_player.living_room.apple_tv*. The known media player was *media_player.living_room*. Here the dead spoke to the living only in the sense that an obsolete identifier remained hard-coded in active logic. The device had not necessarily died; its old name had simply failed to move on [5].

4.4 Case C Seven messages to nowhere

By late May 2026, Spook identified seven reminder-related automations that pointed to an unknown medication-event log action. A separate missing reminder timestamp helper was flagged in early June and then created [5]. For privacy, no resident medical history or medication schedule is reproduced here. The failure mode illustrates a distressing property of software: the more earnestly a system attempts to remember something, the more elaborate its opportunities to forget.

4.5 Case D Unavailable is not undead

The October 3 review found 12 intervals in which the front-door light was unavailable between 11:17 and 11:43 local time. Each approximately 6–68 seconds; three laundry-light gaps lasted approximately 5–9 seconds [4]. A device disappearing from a dashboard and returning without explanation is outstanding horror cinema. Unfortunately, it is weaker physical evidence. The contemporaneous assessment explicitly left transport, power, and Wi-Fi cause unresolved. The research team therefore classified the incidents as Type II and refrained from accusing the front porch of demonic possession.

4.6 Case E Intentional jump scares

The office lighting policy illustrates Type III. Motion can illuminate two lamps at 20% brightness in Night mode, 50% in Bedtime, 100% after sunset in Day mode, or 60% on sufficiently dark-weather days. Automatic shutoff is gated by a 30-minute clear interval; a “Keep lights on” control suppresses automatic shutdown [4]. A motion-triggered night light is not an unexplained manifestation. It is a thoroughly explained manifestation, made more disturbing by the number of conditions necessary to explain it.

5. Results and Discussion

5.1 The scientific contribution of a missing object

The strongest evidence for the ghost hypothesis is that StrixHome contains a ghost-detection integration named Spook. The strongest evidence against it is what Spook actually detects. Its “ghosts” are unresolved entity references, empty configuration leftovers, and operational repairs—not independent signs of a postmortem intelligence [2]. The distinction is academically inconvenient but excellent for troubleshooting.

By September 30, the audited system showed zero active repairs and two dismissed repairs [1]. This is compatible with earlier reported ghosts having been corrected or dismissed. It does not mean the apartment was ever guaranteed ghost-free, nor does it establish a supernatural cleansing. An empty repairs dashboard can coexist with hidden bugs, unresolved network causes, and an owner who has installed still more integrations.

5.2 Big data tiny ghosts

The presence of 1,687 active-state entities permits the phrase “big data” to be written in a title with considerable confidence. It does not, by itself, justify any claim about generalizability. Our sample comprises one residence and several exceptionally cooperative malfunction categories. No inferential comparison against an un-haunted control home was possible because that home was unavailable, and its entity ID could not be found.

5.3 Threats to validity

Construct validity is threatened by the fact that we defined ghost as a missing object and then found missing objects. Internal validity is threatened by a skilled administrator who changes configurations, repairs errors, and therefore interferes with his own haunting. External validity is limited by a selection bias toward homes whose owners treat network diagnostics as leisure activities. Finally, the observer did not perform a double-blind séance because the lamps had already been dimmed to 20%.

5.4 Ethical considerations

No ghosts were harmed; no devices were unplugged to simulate an outage; and no electrical or chemical “cleansing” methods were used. Safety automations, backup power, and medication-related controls should remain governed by real operational requirements. The paper concerns software nomenclature and human overinterpretation, not health or safety practices.

6. Conclusion

This case study demonstrates that a smart home may contain a high density of ghosts while remaining entirely unconvinced of the paranormal. In StrixHome, “haunting” most reliably meant an absent entity, a momentarily unreachable bulb, or a perfectly functioning motion automation whose explanation required a flowchart. The authors therefore propose an evidence-based exorcism hierarchy: inspect the entity ID, inspect the automation trace, inspect the network, and only then consider whether the house has become self-aware. If the house is self-aware, it is currently declining to answer because its notifier service is unavailable.

Future work should recruit multiple homes, preregister the haunting criteria, and include a control residence whose owner has never installed HACS. Such a residence may be scientifically desirable, although locating one could require supernatural intervention.

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