AI-01773 Sonoff Motion Sensor Integration

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Can a sonoff light switch be controlled by a motion sensor in Home Assistant via software which is not in close proximity to the actual local switch? How?

Yes, a Sonoff light switch can absolutely be controlled by a motion sensor in Home Assistant via software, even if the motion sensor is not in close proximity to the actual local switch.
Here's how it works and why it's possible:
The Core Principle: Centralized Control via Home Assistant
Home Assistant acts as the central hub for your smart home devices. It doesn't rely on direct, physical proximity between every single device for them to interact. Instead, devices communicate with Home Assistant (usually over your Wi-Fi network), and Home Assistant then orchestrates the actions between them.
How it's Achieved:

- Sonoff Switch Integration with Home Assistant:
    - Official Sonoff Integration (eWeLink): Many Sonoff devices can be integrated directly into Home Assistant using the official eWeLink add-on or integration. This connects your Sonoff devices (which communicate with the eWeLink cloud) to your local Home Assistant instance.
    - Tasmota/ESPHome Firmware (Recommended for Local Control): For more robust and reliable local control (which avoids reliance on Sonoff's cloud and offers greater flexibility), many users flash their Sonoff switches with custom firmware like Tasmota or ESPHome. This allows the Sonoff switch to communicate directly with your Home Assistant instance over your local Wi-Fi network using protocols like MQTT. This is generally the preferred method for advanced Home Assistant users.

- Motion Sensor Integration with Home Assistant:
    - Zigbee/Z-Wave/Wi-Fi Motion Sensors: Motion sensors come in various connectivity types.
        - Zigbee/Z-Wave: These require a compatible Zigbee or Z-Wave USB stick (or hub) connected to your Home Assistant server. The motion sensor communicates wirelessly with this stick, and Home Assistant interprets the data.
        - Wi-Fi: Some motion sensors connect directly to your Wi-Fi network and can be integrated into Home Assistant through their respective integrations (e.g., SmartThings, Tuya, or native Wi-Fi integrations if available).
- Automation in Home Assistant:
  Once both the Sonoff switch and the motion sensor are integrated into Home Assistant, you create an "automation." This is the software logic that defines how they interact.
  The automation will typically follow this structure:
    - Trigger: The motion sensor detects motion (e.g., state of sensor.motion_sensor_living_room changes to 'on' or binary_sensor.motion_sensor_hallway detects motion).
    - Condition (Optional but Recommended): You can add conditions, such as:
        - Only turn on if it's dark (e.g., sun.sun is below_horizon or a lux sensor reading).
        - Only turn on during certain hours.
        - Only turn on if a certain person is home.
    - Action: Turn on the Sonoff light switch (e.g., service: light.turn_on, target: entity_id: light.sonoff_switch_kitchen).
    - Action (Delayed Off - for turning off the light): You'll usually add another action to turn the light off after a period of no motion, or after a fixed delay. This can be done with a "wait for trigger" (wait for no motion for X minutes) or by creating a separate automation that triggers when the motion sensor clears.

Example Automation (Conceptual YAML):
automation:

- alias: Turn on kitchen light with motion
  trigger:
    - platform: state
      entity_id: binary_sensor.kitchen_motion_sensor
      to: 'on' # When motion is detected
      condition:

Optional: Only turn on if it's dark

    - condition: state
      entity_id: sun.sun
      state: 'below_horizon'
      action:
    - service: light.turn_on
      target:
      entity_id: light.kitchen_sonoff_switch
    - delay: '00:05:00' # Keep light on for 5 minutes after last motion
    - service: light.turn_off
      target:
      entity_id: light.kitchen_sonoff_switch

Why Proximity Doesn't Matter (Electrically):
The physical Sonoff switch is wired to your light fixture. The motion sensor is just sending a signal. Home Assistant is the "brain" that receives the motion signal, processes it, and then sends a command (over your Wi-Fi network) to the Sonoff switch to change its state. The electrical connection of the switch to the light remains local, but the control signal is routed through your network and Home Assistant.
In summary:
Home Assistant bridges the gap between different smart home devices, allowing them to interact regardless of their physical proximity. As long as both your Sonoff switch and your motion sensor can communicate with your Home Assistant

instance (via Wi-Fi, Zigbee, Z-Wave, etc.), you can create automations to control the switch with the motion sensor from anywhere in your home.