



Smart Home Query Interface For Google Home



Declan Edgecombe, Brian Thomas, Aaron S. Crandall

Voiland College of Engineering and Architecture, Washington State University

Introduction

Throughout the world the population is aging. The number of people over age 65 is increasing every day. Due to the exponential increase in older adults, there is a large market for technology that helps older adults, the so called world of gerontechnology. In order to improve the lives of older adults, we have created an app for the Google Home which can answer various questions about smart homes including what the occupant has done within the last 24 hours.

Process

- User asks a question
- Api.ai interprets what the user is asking
 - Chooses the intent that the user is likely asking about (see figure 1)
- The intent then triggers a JSON query to be sent off to a web API which will attempt to interpret the question. (See figure 4)

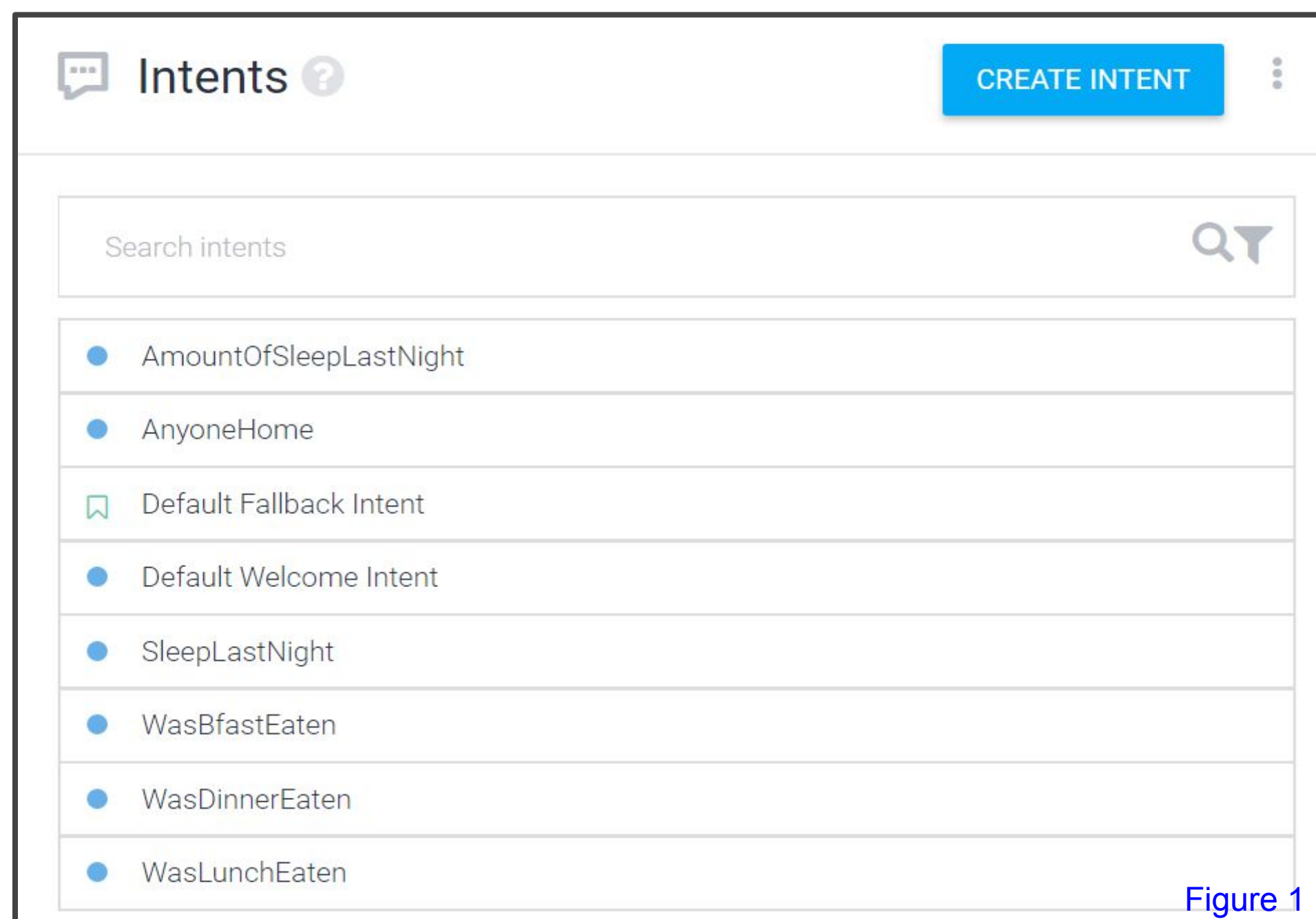


Figure 1



Sample Questions

- Did the resident eat dinner? (See figure 2)
- Did the resident work?
- Did the resident sleep?

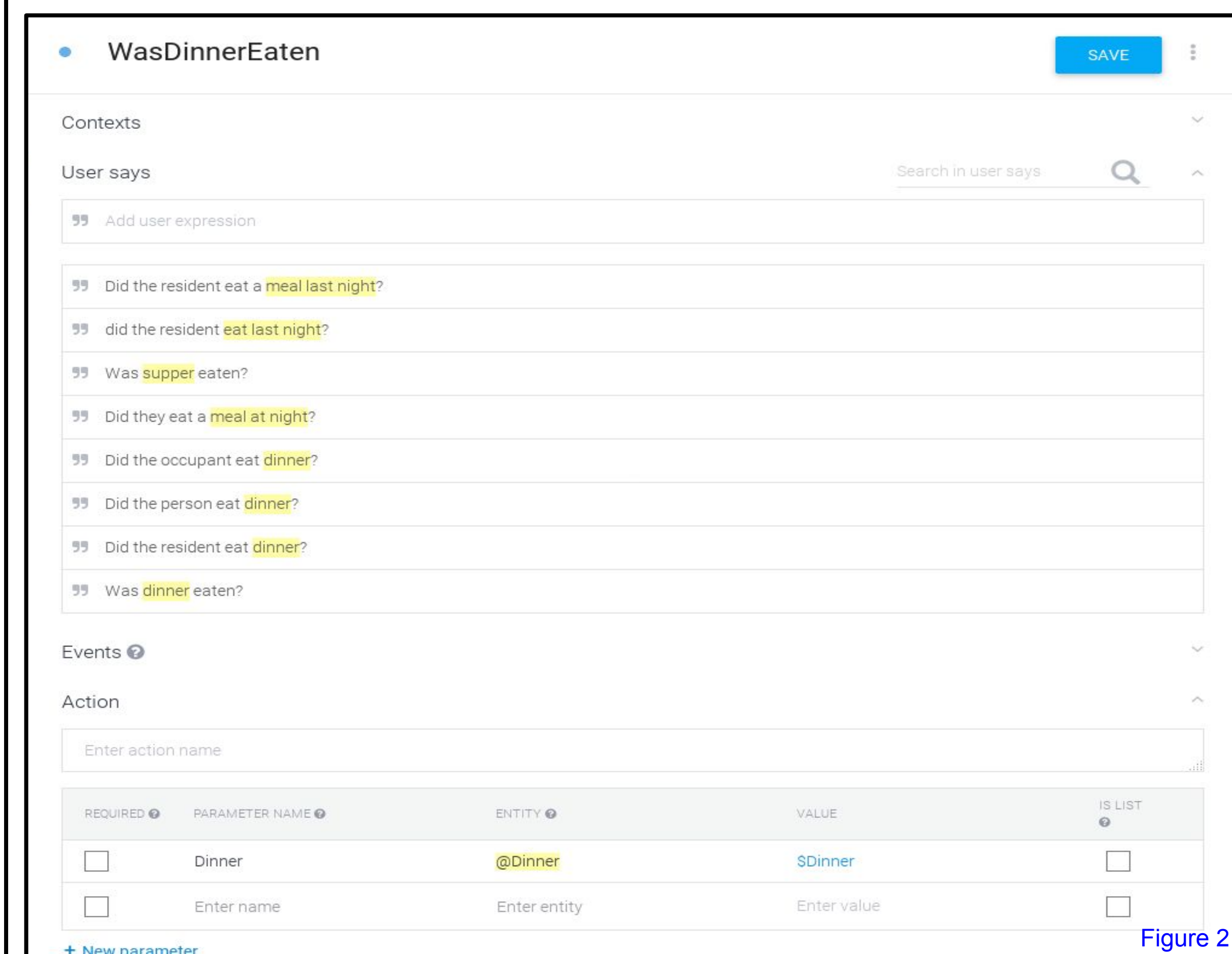


Figure 2

Natural Language

- Hard to identify the correct question
- Must enter many varieties of question to train agent
- API.ai allows you to see queries ask and assign intents to them (see figure 3)

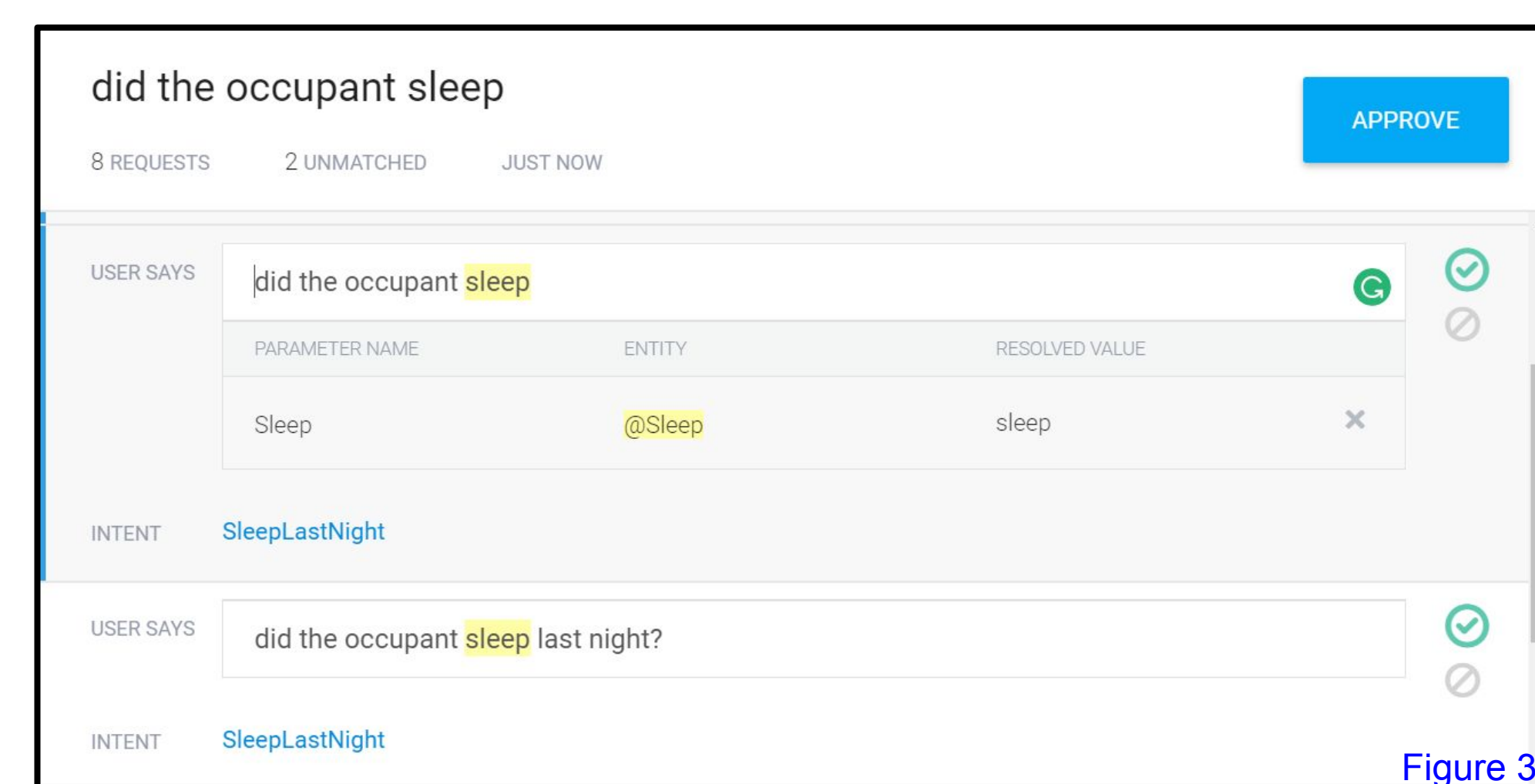


Figure 3

Results and Conclusion

- App can respond to user queries and tell them answer about what is happening within a home based on sensor data.
- Currently can only answer if the user has:
 - Slept (See figure 4)
 - Worked

JSON

```

1 - {
2   "id": "9fb4474e-d549-47b2-8870-752870cd4a3f",
3   "timestamp": "2017-08-01T17:48:17.991Z",
4   "lang": "en",
5   "result": {
6     "source": "agent",
7     "resolvedQuery": "Did the resident sleep?",
8     "action": "",
9     "actionIncomplete": false,
10    "parameters": {
11      "Sleep": "sleep",
12      "time-period": ""
13    },
14    "contexts": [],
15    "metadata": {
16      "intentId": "c0b7e767-0b22-40e8-bdc9-6443e2d6dca0",
17      "webhookUsed": "true",
18      "webhookForSlotFillingUsed": "false",
19      "webhookResponseTime": 197,
20      "intentName": "AmountOfSleepLastNight"
21    },
22    "fulfillment": {
23      "messages": [
24        {
25          "type": 0,
26          "speech": "Getting info on the amount of sleep the resident had."

```

Figure 4

Future Work

- Integrate technology into people's homes to allow them to monitor their own status.
- Upgrade the API to be able to answer many more questions about what is happening within a home at any given point in time.
- Let other family members monitor how older adults are doing in their every-day tasks.

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