

# MapChat

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## Goal

- Quest based game
- English practice from everyday "chats"
- Mimic real-world experience

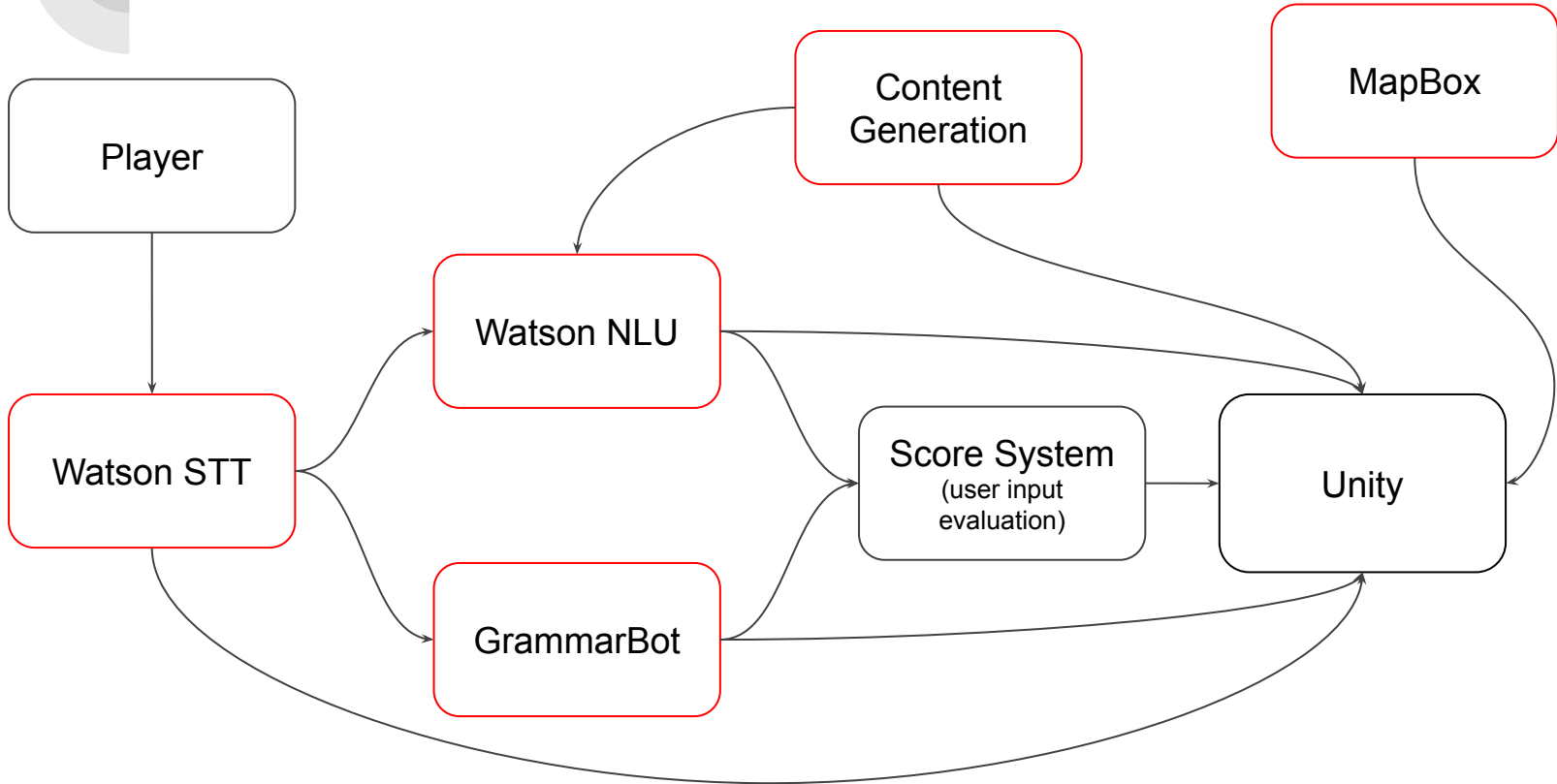


# Features

- Utilized various existing Machine learning services
- 2D playground 3D real map
- Player will be given a list of words
- Use the words in the conversations to collect points
- Level up when gets enough points
- Words will be more complex as level increases



# Game Structure





# Content Generation

- Need content to engage our users
- Initially trained RNNs to generate text
  - Trained on Yelp reviews
  - Used USC HPC resources
  - Results were not suitable for gameplay
- Used the Yelp data as content instead
  - Real people talking about real things

```
1 [
2 {
3   "bus_id": "CGUK3cd2gxp2q3KPY190og",
4   "text": "Yum!! Had the kale grits and would definitely
           have those again! Menu choices are unique, farm fresh
           and delicious!"
5 },
6 {
7   "bus_id": "xS5HGqgk0KY2jFWU-l_nrA",
8   "text": "I'm not that familiar with Scottsdale so I'm
           just guessing that this restaurant is fairly new. The
           atmosphere is great and lively but s but loud. They
           have a huge wine and drink list. The food was
           really good, I highly recommend the ahi tuna
           appetizer, ravioli and the skirt steak!"
9 },
10 {
11   "bus_id": "zk3AimWhuz0EZsNgIddKdg",
12   "text": "Awful place. Staff is not nice, very rude.
           They never seem to want to help at all..Their service
           is not up to par & always out of bagels"
13 },
14 {
15   "bus_id": "qaPSbg690KaX5av6xsSV4Q",
```



# Watson Speech to Text

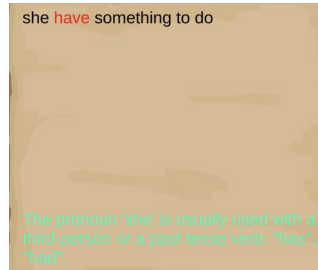
- Default Speech-to-text model not accurate in certain circumstance
- Issues pertaining to :
  - Accent of user
  - Noisy background
- Increase the accuracy by training the model
  - Using VOICES open-source dataset
  - CMU\_ARCTIC speech synthesis databases



# GrammarBot

- Checks the grammar mistakes by requesting `api.grammar.io`
- Shows the location and mark the mistakes in the chatbox
- Used to evaluate user's performance

```
▼ 1:  
  ▼ message:      "The pronoun 'she' is usually used with a third-person or a past tense  
    shortMessage: "Agreement error"  
  ▼ replacements:  
    ▼ 0:  
      value:      "has"  
    ▼ 1:  
      value:      "had"  
    offset:      4  
    length:      4  
  ▼ context:  
    text:        "she have something to do"  
    offset:      4  
    length:      4  
    sentence:    "she have something to do"
```





# Watson Natural Language Understanding

- Extract Contextual Category of sentences
- Employ Weighted Average IoU as the measure
- Calculate contextual similarity of voice input
- Similarity measure used to evaluate user's performance

Hello! We have a special offer on sanitizers and hand wash soaps. Couple that with some healthy fruit snacks and you'll be good to fight any virus in the world.

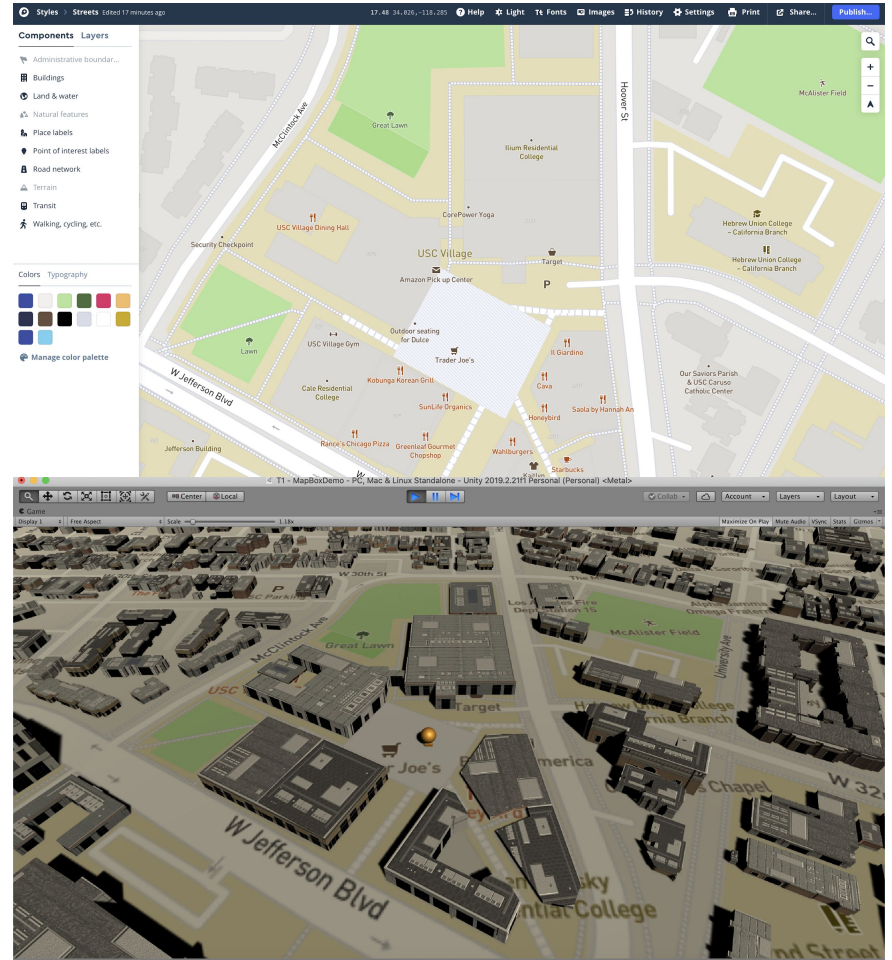
KEYWORD	CATEGORY	FITNESS SCORE
virus	<i>Health and Fitness</i>	0.798398
snacks	<i>Food and Drink</i>	0.71396
virus	<i>Health and Fitness</i>	0.688731





# MapBox

- Major move towards a real world environment
- Focus on USC Village
- Players can interact with familiar surroundings



# Demo





## Future work

- Use paid/alternate versions of speech to text and NLU to further train the models
- Improve RNN models to generate content in game
- Dynamically assign 'chat spots' on the 3D map
- Refined scoring system