

# NAO RoboCup Project

Rock, Paper, Scissors



# TABLE OF CONTENTS



**01**

## **Rock, Paper, Scissors**

Goals and Motivation

**02**

## **Gestures**

Creation of Keyframes

**03**

## **Communication**

WiFi Server/Client Protocol

**04**

## **GUI**

Graphical User Interface

**05**

## **Project Presentation**

Time to show off!

**06**

## **Conclusion**

Successes & Failures



01

# Rock, Paper, Scissors

Goals and Motivation



# PROJECT GOALS

## GOAL 1

Fun and Interesting  
Robot Interaction



## GOAL 2

Adherence to the  
Sense Think Act Principle



## GOAL 3

Reasonable Scale and  
Complexity of Project





## Project Blueprint

- Two Robots play 3 Rounds of Rock, Paper, Scissors
- Robots communicate via WiFi
- Robots react to winning or losing



# SENSE - THINK - ACT



## SENSE

own joint positions,  
loaded keyframes,  
incoming WiFi messages



## THINK

interpret WiFi messages,  
determine next move



## ACT

Execute gestures,  
Reply to WiFi Messages





02

# Generate Keyframes

Creation of Robot Gestures





## names

type() = list()

```
["HeadYaw", "HeadPitch", ...]
```

## times

type() = list(list())

```
[1., 2., 2.8, 3.6, ...]
```

## keys

type() = list(list(list()))

```
[[2.0, [3, -0.3, 0.0], [3,  
0.3, 0.0]]...]
```







# Notebook Demo

generate your own gestures



03

# Communication

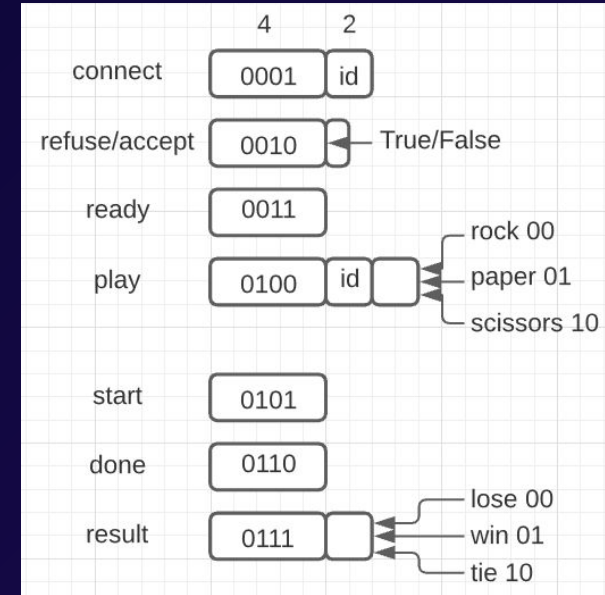
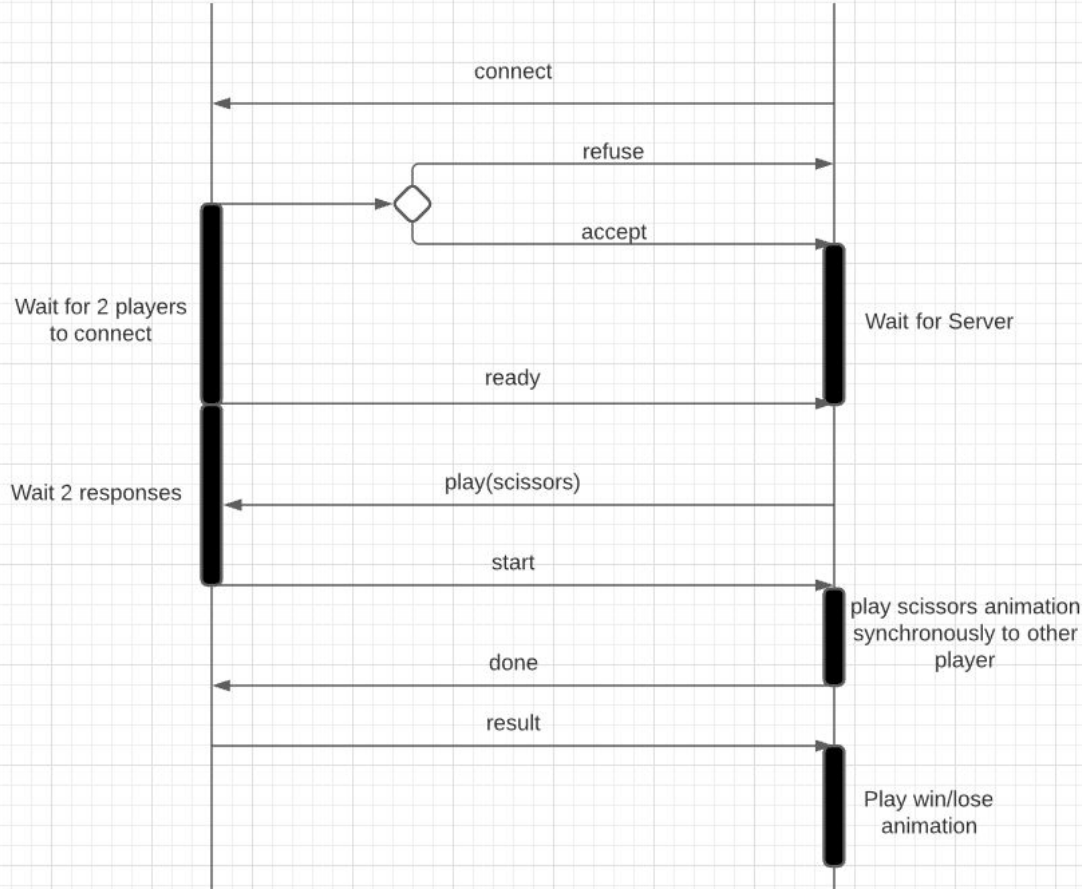
Client/server Protocol  
via WiFi



Only One Lobby at a time

Server

Client





04

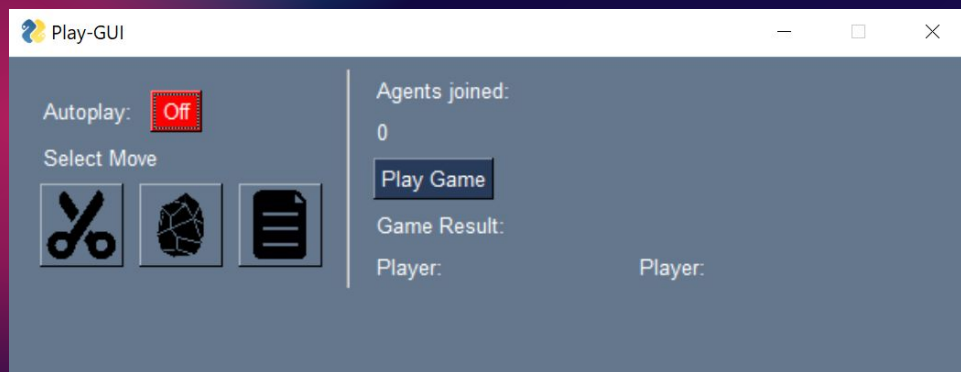
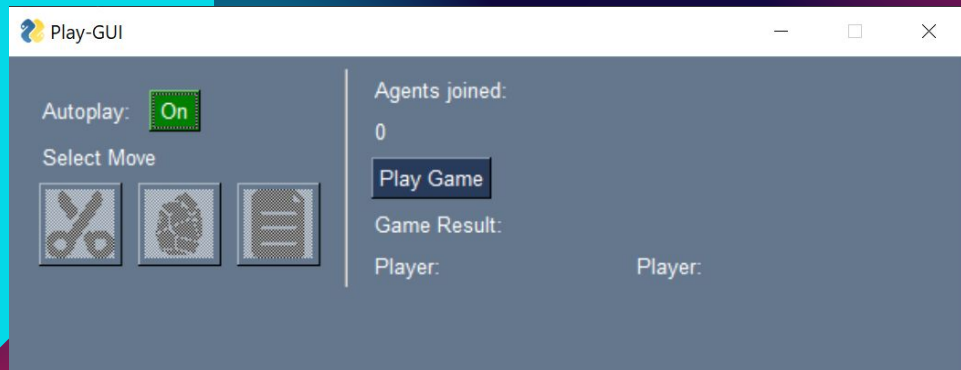
# GUI

Graphical User Interface



# GUI

Make the code easy to use





05

# Project Presentation

Let's Play Rock, Paper, Scissors!





06

# Conclusion

Final Thoughts





# CONCLUSION

- 3 Rounds -> Round on Demand
- Sense Think Act
- interesting Robot-Interaction
- User friendly



“If you don't do the best with what you have, You could never have done better with what you could have had !”

— Ernest Rutherford

