

# Systems Programming Project Report

## Creators

Diogo Lee Leitão nº 99917 LEEC João Barreiros C. Rodrigues nº99968 LEEC

## General Architecture

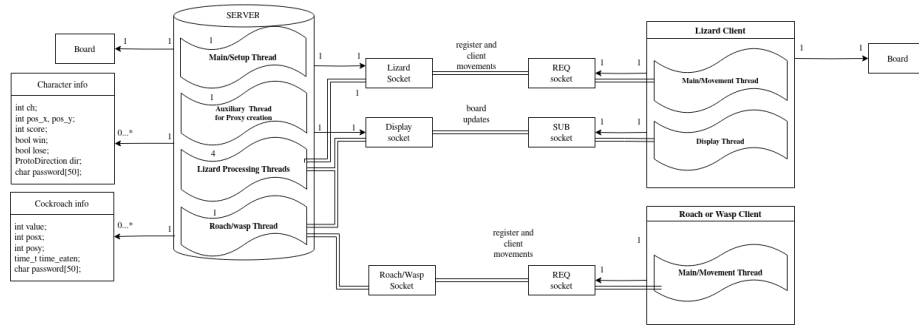


Figure 1: Simplified Architecture of the lizardsNroachesNwasps distributed system

## Communication / Message Architecture

Two protobuf messages:

- **ProtoCharMessage**
  - Used to play the game, contains information about the character(s) movement(s)
- **ProtoDisplayMessage**
  - Used to update remote displays in lizard clients

One hardcoded C structure:

- **Board**
  - Since the lizards do not need to communicate exclusively in protobuf Messages a C structure is sent hardcoded through the ZMQ-REP server socket after the lizard client registers its display in the server so that the lizard's display can be initialized with the current state of the game.
  - A containerized version of the struct could have been done in protobuf, but we opted to not change this as it was not required.

## Implemented

### General/Meta

[x] Simple Message Authentication using passwords

### **Server**

- [X] Threaded Server with 4 threads for Lizard Handling and 1 for Roach/Wasp Handling
- [X] Include win and lose conditions

### **Lizard-Client**

- [X] Seamlessly integrate remote display
- [X] Timeout Inactive Clients
- [X] Handle SIGNINT exit

### **Roach/Wasp client**

- [X] Handle SIGINT exit
- [X] Create client in a non-C language

### **Major alterations between versions**