

Software project: Internet communication

Reaction game with magnetic tape machines

Steve Dierker, Patrick Hjort, Semjon Kerner

Motivation

The intention of this project was to revive the PDP11 Servers in figure 1 located in the Freie Universität Berlin, in such a way that they enrich the hallway. So that, despite the original purpose is lost, students can still enjoy it and may be inspired to upcycle hardware on their own.

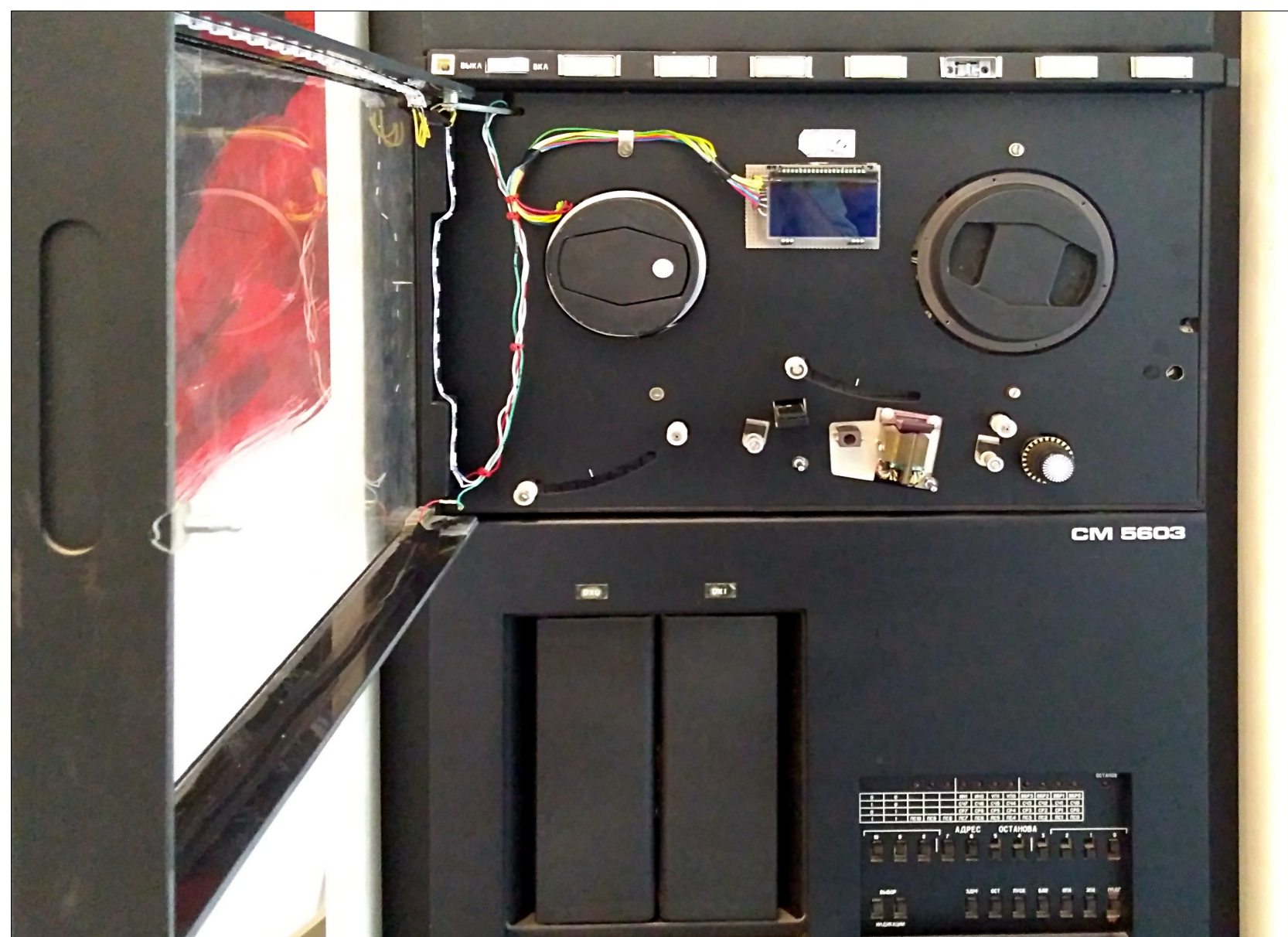


Figure 1: PDP11 Server Racks with converted Magnetic Tape Machines

The Hardware

The mainboard in figure 2 combines the microcontroller samr21-xpro, which manages the hardware, a multiplexer for the buttons, an H-bridge for driving both motors, an LCD and an LED strip with WS2811-compatible ICs. From an ATX power supply it pulls 12V and 5V via a Molex plug. In addition a connector strip connects the circuit board to the LCD and the LED strip on the front panel.

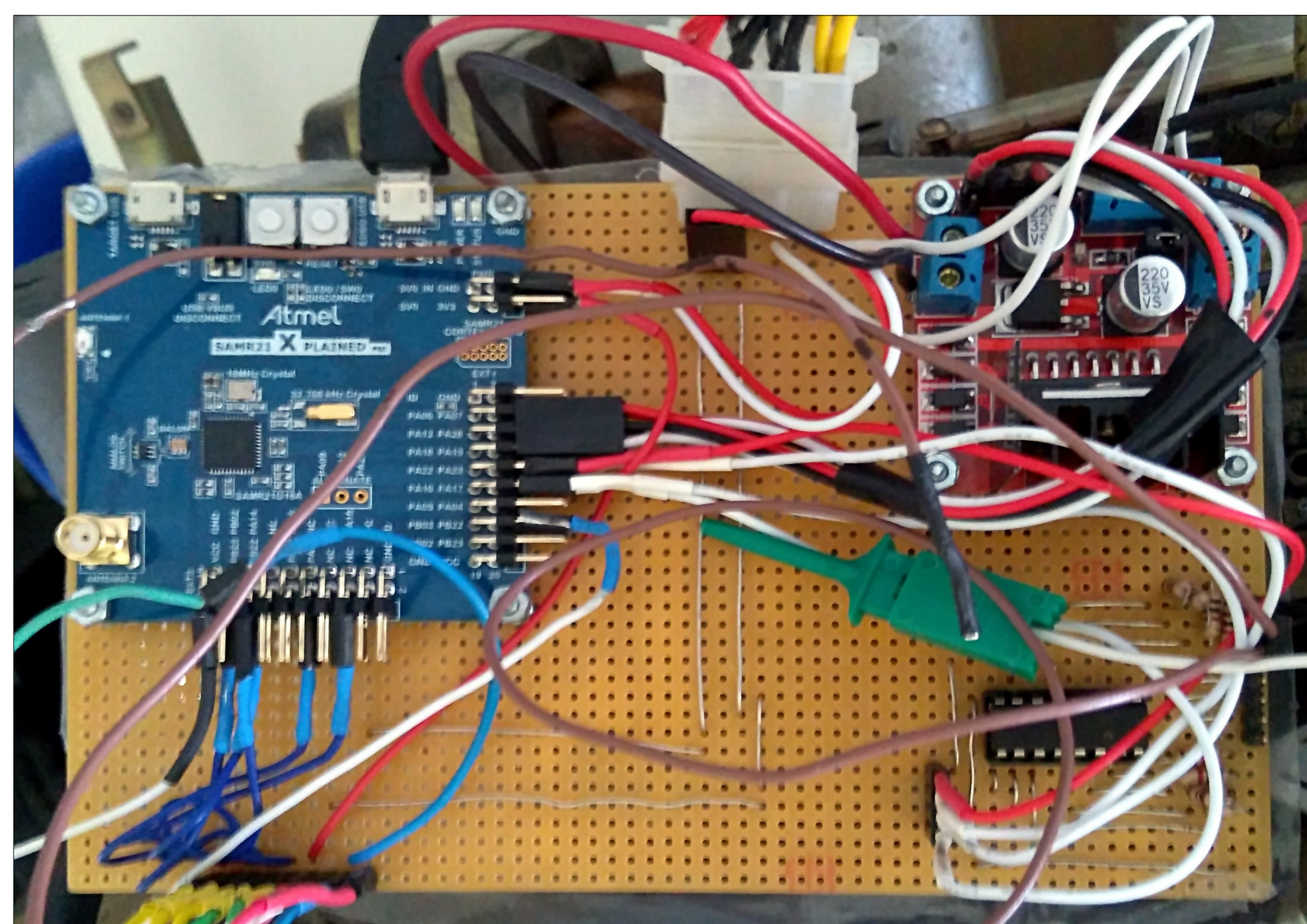


Figure 2: Mainboard with Samr21-Xpro Controller (top left), Multiplexer (bottom right) and H-Bridge (top right)

Idea

We converted two magnetic tape machines from an old PDP11 server into a reaction game for two competing players. For this purpose the given hardware was partially used (motors, buttons) and supplemented by additional parts (LCDs, LED-Stripes, H-Bridges, Multiplexer) to create a cohesive arcade game feeling. Both machines communicate wirelessly via a COAP client/server.

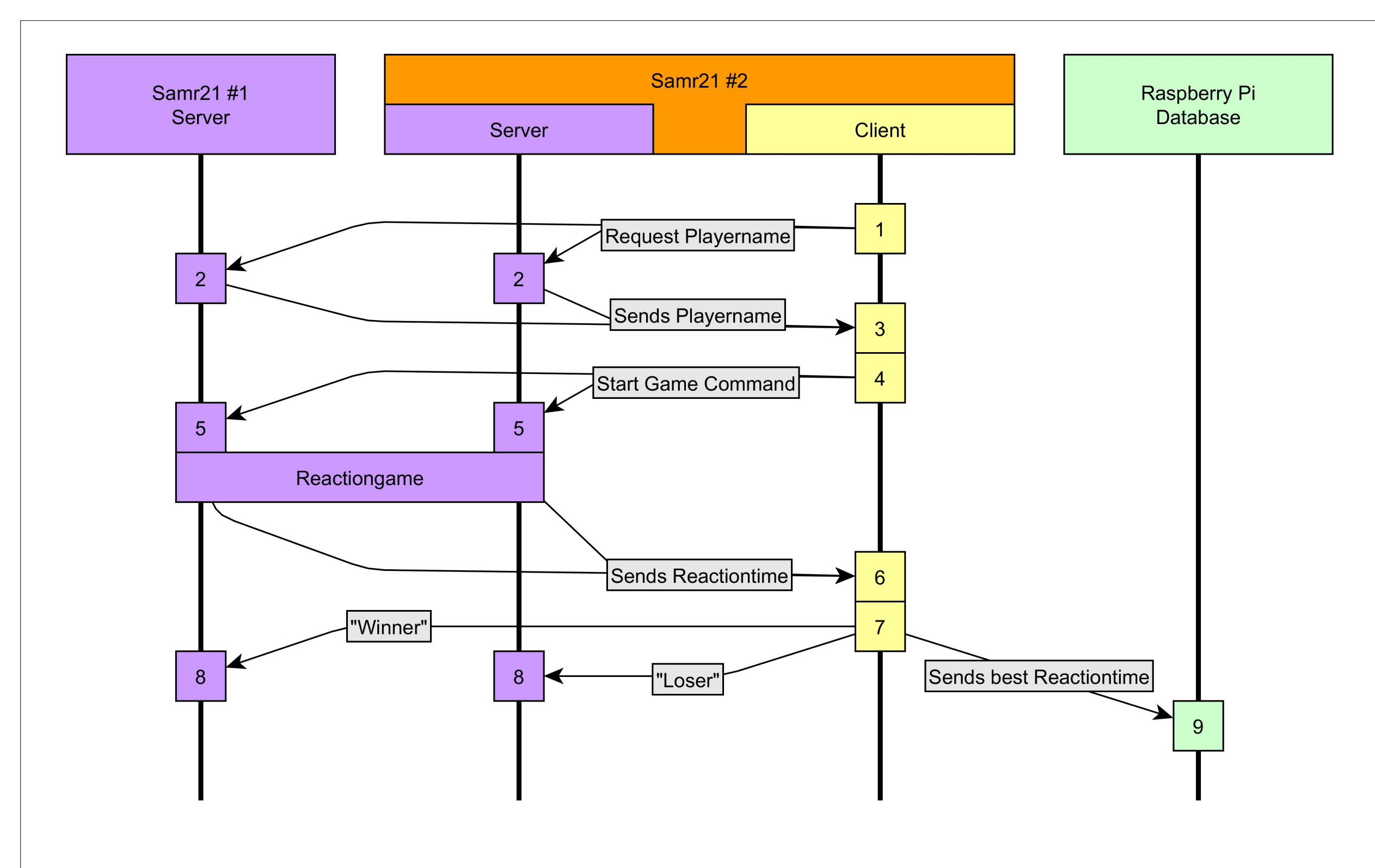


Figure 3: Networking

The Game

In this game you are challenged to react as quickly as possible. For this competition you need one player on every magnetic tape machine.

First enter your nicknames using the buttons and fill in the line with spaces.

Once the machines have finished setting up the game, the display shows a countdown and the motors start spinning. As soon as the motors stop and the LEDs stop changing colors you have to press the gamebutton as fast as you can. The faster player wins and gets an entry in the high score.