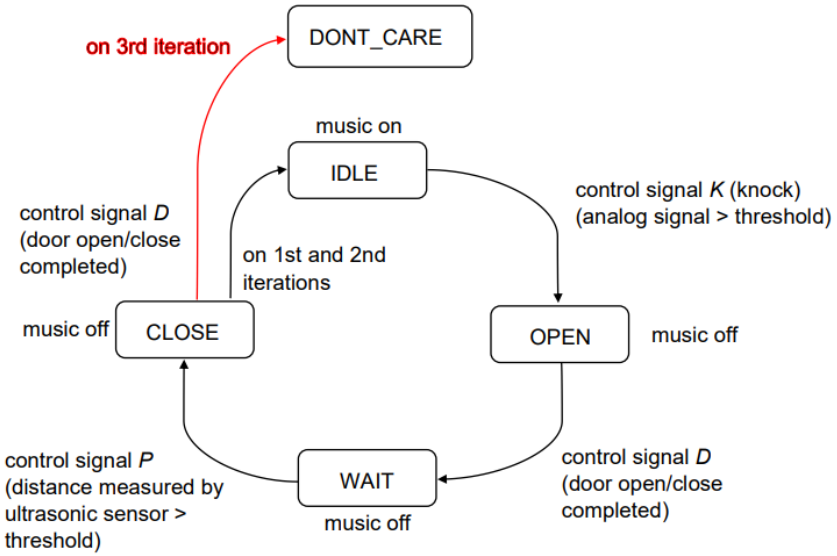
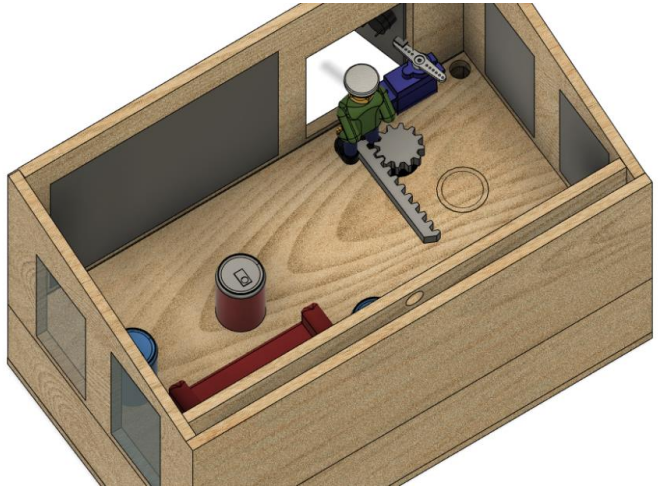
Functionality

Video demonstration is provided at https://www.digifab-oulu.com/2020/04/13/wakeywakey-machine-week-6-decorating-the-house/.

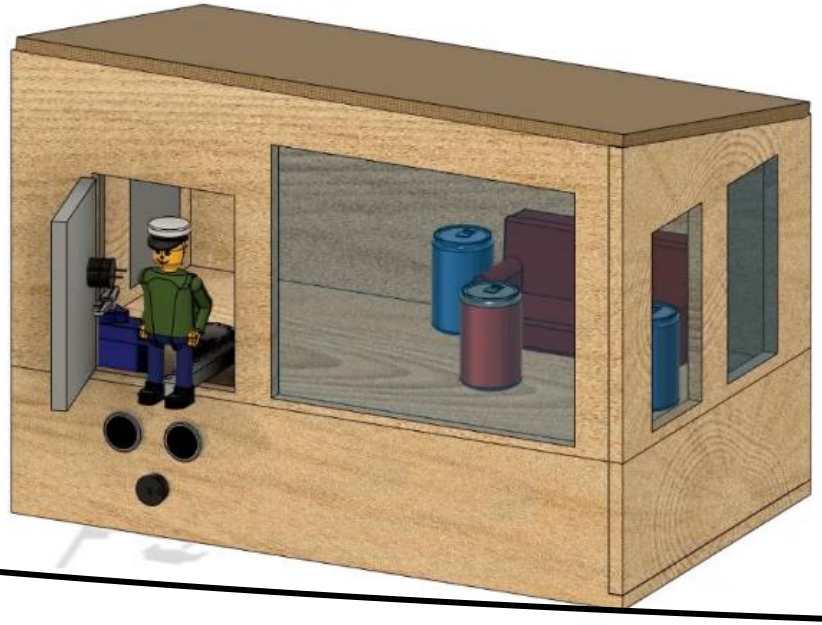




knock on the door

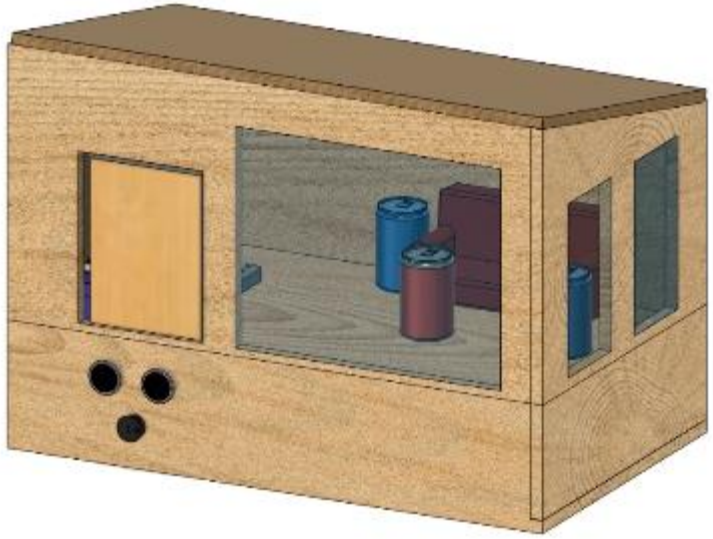
open the door and bring the figure forward

stop music



the user leaves

→ bringing the figure back inside and closing the door

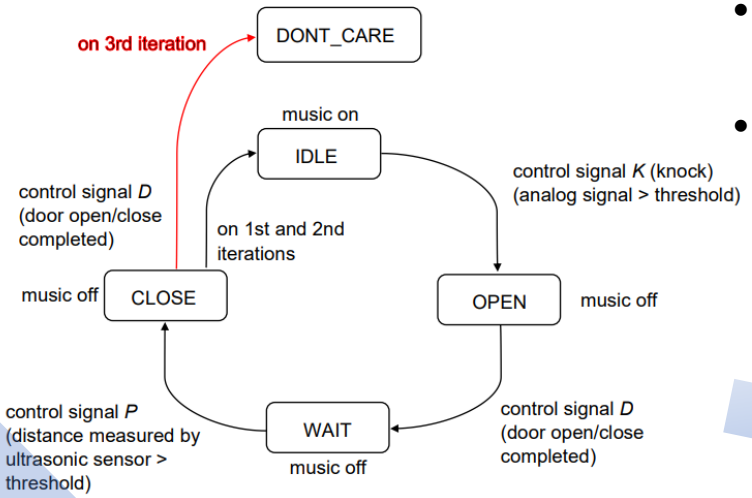


resume the music and repeat

Programming

Writing the code

”State machine”



LEDs

- separate control for each LED (6 in total)
- a function assigns a random state for each LED when called
→ vector [0 1 1 0 0 1]

Servos

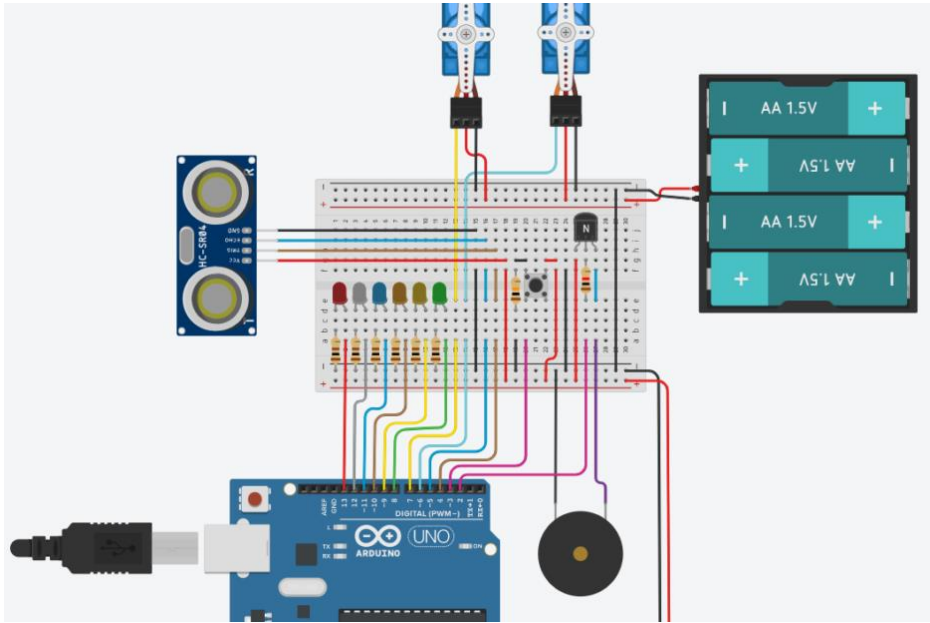
- gradually open/close the door and bring the figure forward/inside

Main loop & music

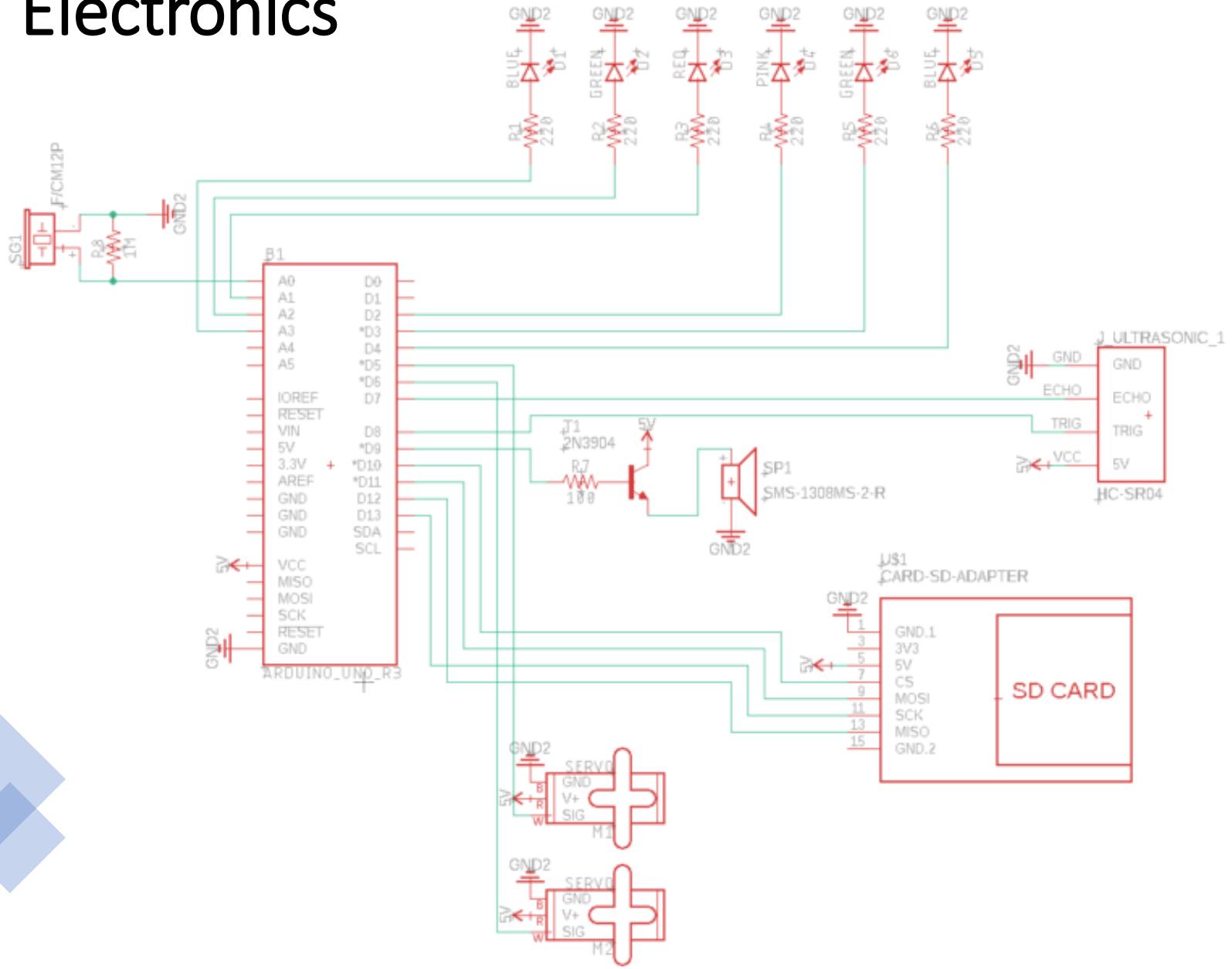
- govern the states
- play the music with an external library (TMRpcm)

TinkerCAD prototype

- piezo knock sensor simulated with a pushbutton
- used the *tone*-function to play simple melodies instead of TMRpcm



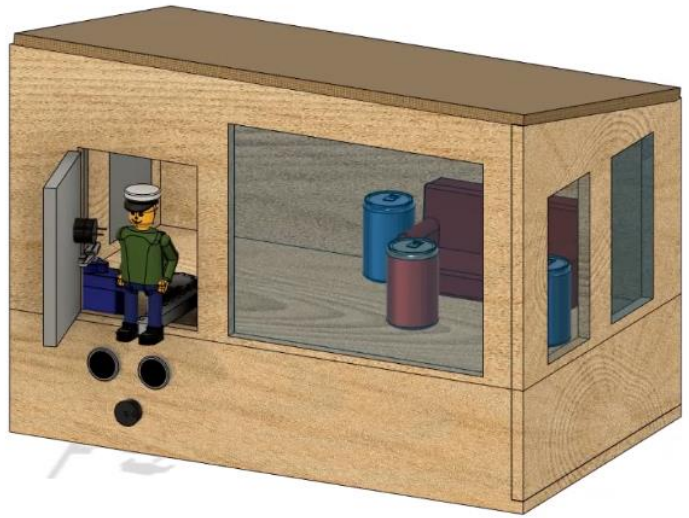
Electronics



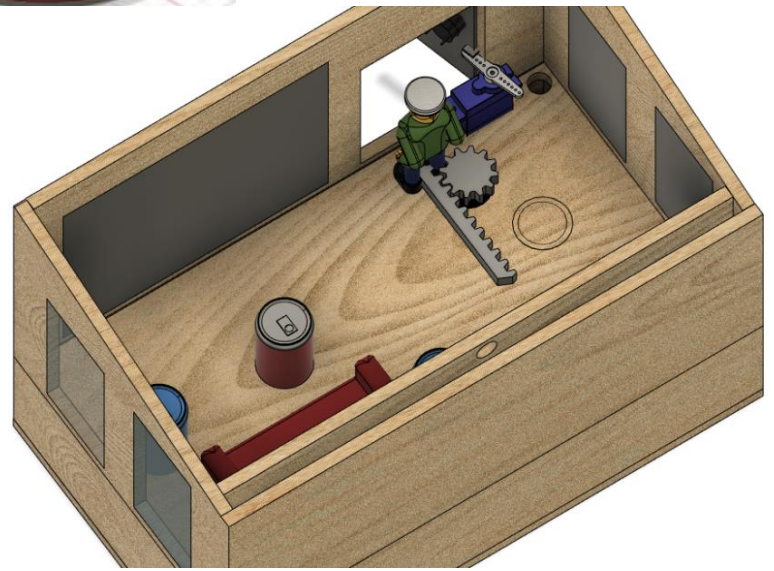
3D models

The figure wearing its cap

Furniture for the house



3D prototype to visualize the house



Laser cut model

To be done:

- holes for the ultrasonic sensor and piezo
- hinge and an arm for the door and the servo.