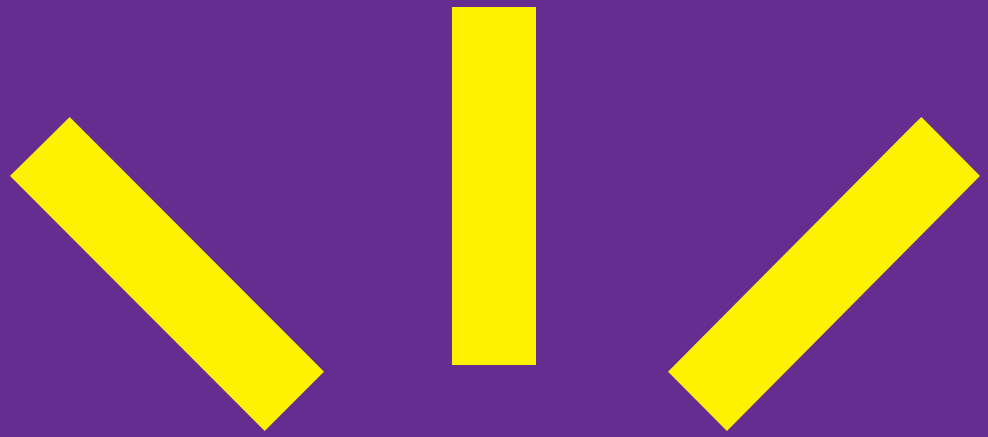


Group 17

Eetu Matikkala

Duong Vo

Jari Pentinmikko

Smart home system

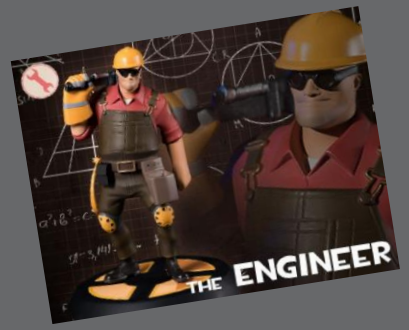
Description and parts used

- Our project is a smart house system inside a model house.
- The system is controlled by a website hosted by the Pico through any local network (WIFI)
- Features include:
  - Wireless / Local network control of the system
  - 6+1 individually toggled LEDs for lighting each respective room
  - Ambient light sensor to turn on all LEDs when ambient lighting is minimal
  - Garage door controlled by a servo motor

Smart home system

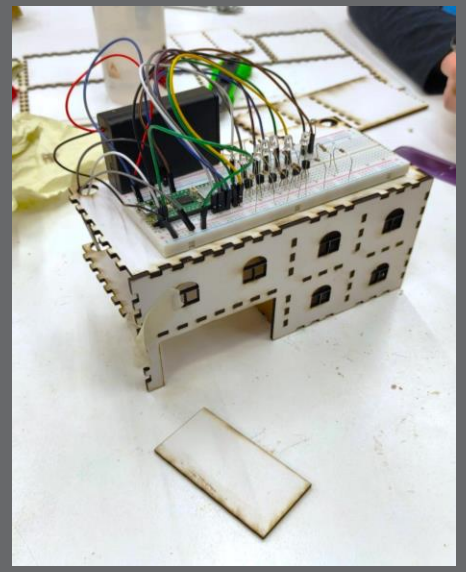
Sustainability

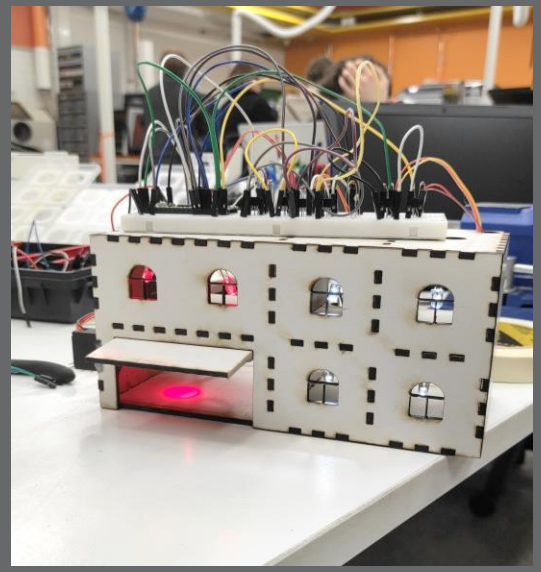
- *The house is made of hardboard, which is recyclable.*
- *Smaller house model was cut out to test fitment of panels before the final cut*
- *Scrap wood for additional decorative pieces*
- *Scalable and versatile system design*

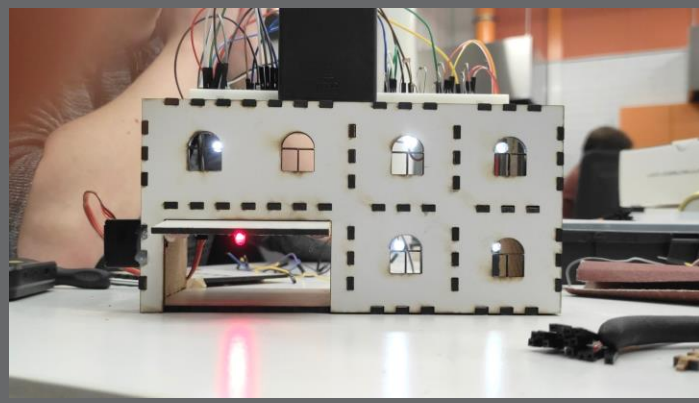


Processes

- *Inkscape designing*
- *Laser cutting*
- *Circuit designing and simulation (KiCad and Wokwi)*
- *Programming and Networking*



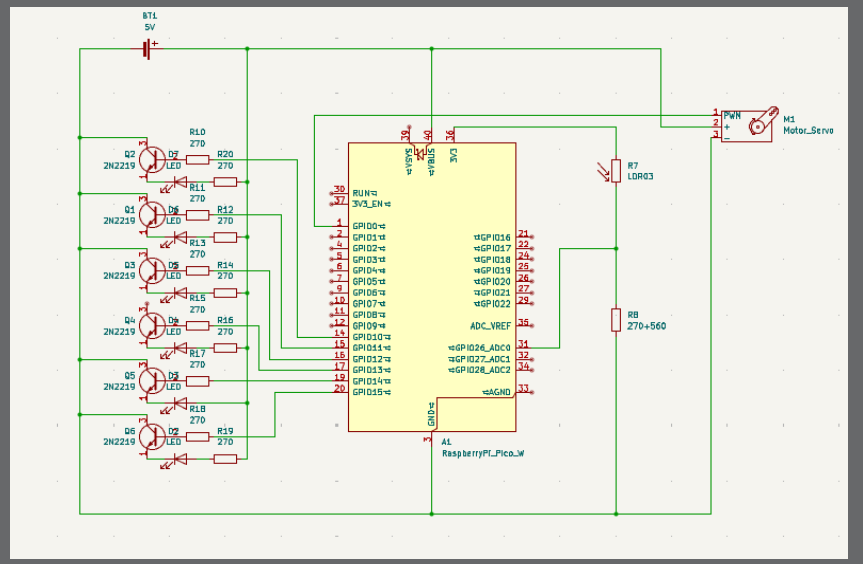




Smart home system

Challenges

- Implementing separate power paths for brains (Pico) and muscles (servo/lights)
- Setting up the server and the webpage
- Connecting LEDs in series
- Designing the house model
- Fitting parts of the house model together
- Garage door implementation and fitment



Reflection

We have learned about the laser cutting process and the development of a smart home system. The final project works quite well and all functionalities function as planned. We ended up scrapping the doorbell feature which we originally had planned due to the complexity and time constraints resulting from not so optimal planning and time management.

Smart home system

DEMO