Project idea presentation

Agenda

- Project idea
  - Design sketch
  - Components
  - Bill of materials
- Learning outcomes

The source code, design files and presentations will be stored in: Kallio600/digitalfabrication

Project idea

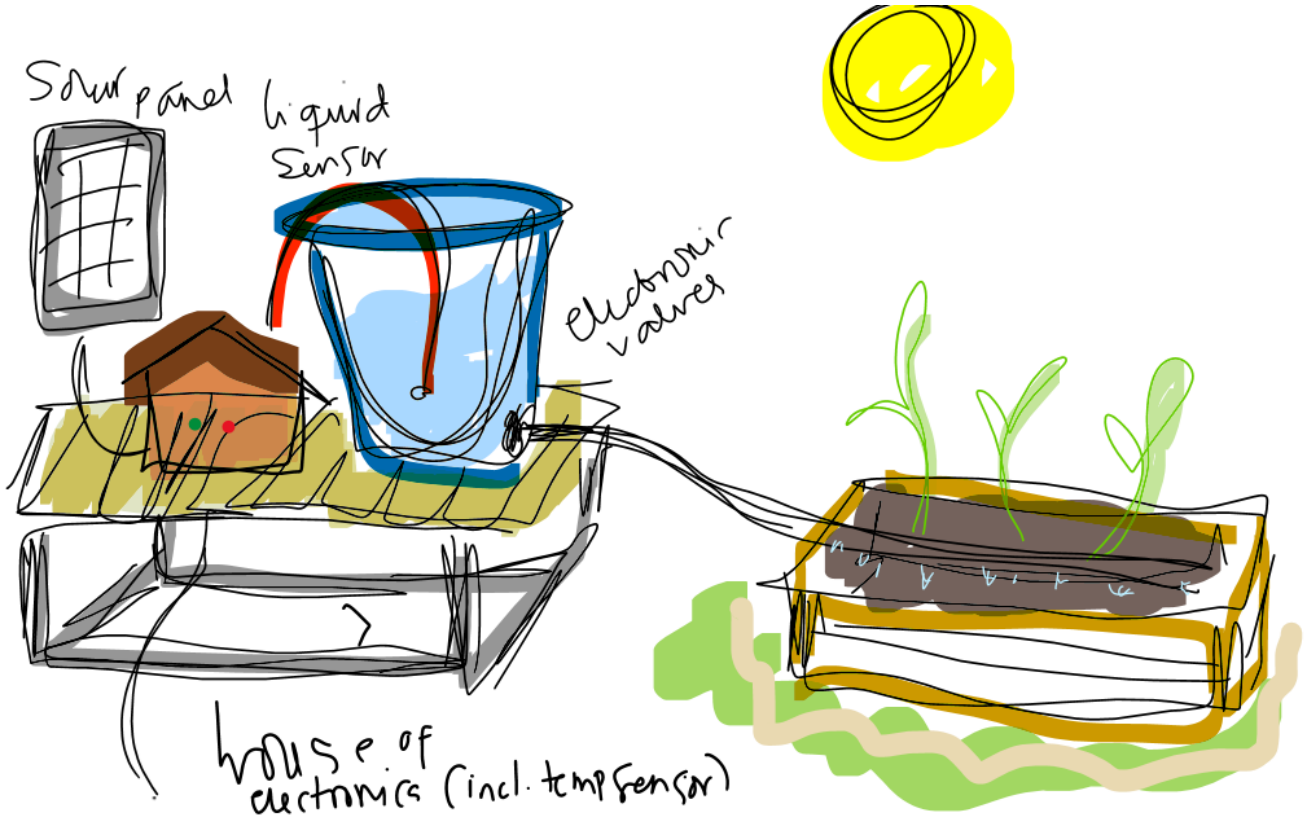
A gravity-fed irrigation system designed to activate automatically when the daily average temperature exceeds +15 degrees Celsius for two consecutive days.

The system utilizes **electronic valves** to regulate water flow from a barrel, ensuring efficient and sustainable irrigation. The valves are controlled by **temperatur**e and **water level sensors**, ensuring that water is only dispensed when necessary. If the water level or temperature drops below a predefined threshold, the system prevents irrigation and activates an indicator light (**red LED)** to alert the user.

The system is powered by **a solar panel**, making it an environmentally friendly and autonomous solution. Additionally, **an on/off switch** allows manual control, with a **green LED** indicating system operation.

The irrigation starts at 7 AM and runs for 90 minutes at the time. After that (or if the water level drops below the predefined threshold during the irrigation) the valves close.

(Full introductory report in different file/DEP)



Design sketch

Components to be used

Sensors	Actuator	3D printing	2D laser cutting
Temperature	Electronic valves*	Enclosure**	Display cover
Liquid		Brackets	

*Agreed to replace actuators by electronic valves

**House shaped enclosure for battery and electronics

Bill of materials

New	Recycled	Made
Dip-hose & coupling	Barrel 200L	Enclosure
Microcontroller	EUR pallets	Brackets
Breadboard	Electronic valves	Display cover
Jumper wires	Solar panel & charge controller	
Liquid level sensor	Battery	
Small display	Relay	
Green and red LED indicators	On/off switch	
	Metal parts for the stand*	

*If needed

Learning outcomes

For the first two weeks, the main learning outcomes have been:

- Understanding that completing the course independently/remotely requires extra proactivity - Successfully started the project, bought components, and booked printing slots.
- Learning 3D modelling takes time - Encountered and solved a design mistake (modelled an enclosure before finalizing battery selection, leading to incorrect dimensions).
- Key learning: Define project “ground rules” that impacts the design (e.g., component sizes, printing limits) before starting modelling. Read the instructions carefully and do not hesitate to ask help if needed. Be proactive and be on top of the schedule.

(Diary will be updated in DEP)

Thank you

Senja Kallio

spiekkal9@student.oulu.com