



# 02. ANALYSIS OF TECHNOLOGICAL SYSTEMS

M1U3P2 DESIGN AND TECHNOLOGY

# SYSTEM ANALYSIS

- Considering that if one of the system components (input, process, output and feedback) stops working or get's broken the whole system will not work properly
- We need to analyze and understand how the whole system works so we could easily find the problem

# ELECTRIC WATER HEATER

- Input →
- Process →
- Output →
- Feedback →



# ELECTRIC WATER HEATER

- Input → Water & Electric energy
- Process →
- Output →
- Feedback →



# ELECTRIC WATER HEATER

- Input → Water & Electric energy
- Process → Electricity heats the coil, which heats the water
- Output →
- Feedback →



# ELECTRIC WATER HEATER

- Input → Water & Electric energy
- Process → Electricity heats the coil, which heats the water
- Output → Hot water
- Feedback →



# ELECTRIC WATER HEATER

- Input → Water & Electric energy
- Process → Electricity heats the coil, which heats the water
- Output → Hot water
- Feedback → Setting the water temperature





The background is a dark teal gradient. In the corners, there are white line-art graphics resembling circuit boards or neural networks, with lines connecting to small circles.

# WHAT PROBLEMS CAN WE HAVE WITH THE WATER HEATER?

# PROBLEMS WITH THE WATER HEATER

- There can be many problems that can happen with the heater
- Example the water is not hot enough, the way to fix it is:
  - Check if we plugged the cable
  - If there is electricity in the house
  - Are there any lights on it
  - Maybe the thermostat is broken

# SOLAR DRYER

- Input →
- Process →
- Output →
- Feedback →



# SOLAR DRYER

- Input → Solar energy & food that we want to dry
- Process →
- Output →
- Feedback →



# SOLAR DRYER

- Input → Solar energy & food that we want to dry
- Process → Aluminium gets heated by the sun and then that way it starts to heat the oven
- Output →
- Feedback →



# SOLAR DRYER

- Input → Solar energy & food that we want to dry
- Process → Aluminium gets heated by the sun and then that way it starts to heat the oven
- Output → Dry food
- Feedback →



# SOLAR DRYER

- Input → Solar energy & food that we want to dry
- Process → Aluminium gets heated by the sun and then that way it starts to heat the oven
- Output → Dry food
- Feedback → We can't control the sun....maybe...



# SOLAR DRYER

- Input → Solar energy & food that we want to dry
- Process → Aluminium gets heated by the sun and then that way it starts to heat the oven
- Output → Dry food
- Feedback → We can put it into a shade



ตัวป้อน



แสงอาทิตย์  
อาหารที่ต้องการอบแห้ง

กระบวนการ



พื้นอะลูมิเนียมสีดำดูดกลืนความร้อนจาก  
แสงอาทิตย์ เกิดความร้อนสะสม และการ  
หมุนเวียนอากาศภายในตู้อบ

ผลผลิต



อาหารอบแห้ง



WHAT CAN BE A PROBLEM WITH A SOLAR DRYER?

# PROBLEM WITH SOLAR DRYER

- One of the problems could be that the food is not dry enough so we need to find the reason why
- Some of the reasons can be
  - Maybe there isn't enough sunlight
  - Material inside isn't good, it doesn't absorb enough heat, or the heat is going out
- Which color is the best to use?

# AUTOMATIC WATER SYSTEM

- Input →
- Process →
- Output →
- Feedback →



# AUTOMATIC WATER SYSTEM

- Input → Water
- Process →
- Output →
- Feedback →



# AUTOMATIC WATER SYSTEM

- Input → Water
- Process → Checking if the soil is enough wet, if it is not enough wet the pump starts to work
- Output →
- Feedback →



# AUTOMATIC WATER SYSTEM

- Input → Water
- Process → Checking if the soil is enough wet, if it is not enough wet the pump starts to work
- Output → Water sprays out from the sprinklers
- Feedback →

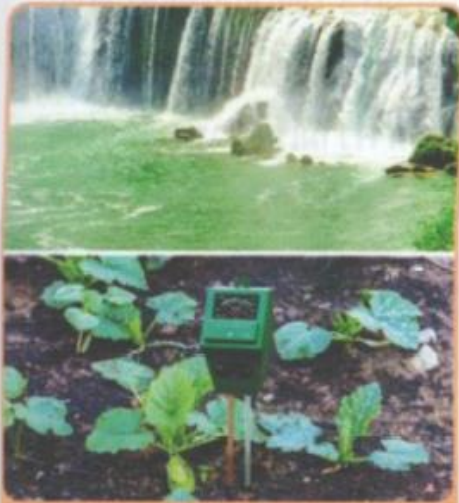


# AUTOMATIC WATER SYSTEM

- Input → Water
- Process → Checking if the soil is enough wet, if it is not enough wet the pump starts to work
- Output → Water sprays out from the sprinklers
- Feedback → How much do we want the soil to be wet



# ตัวป้อน



ค่าความชื้นในดิน น้ำ

# กระบวนการ



เซ็นเซอร์ตรวจวัดความชื้นในดิน  
ส่งสัญญาณให้ปั๊มน้ำทำงาน

# ผลผลิต

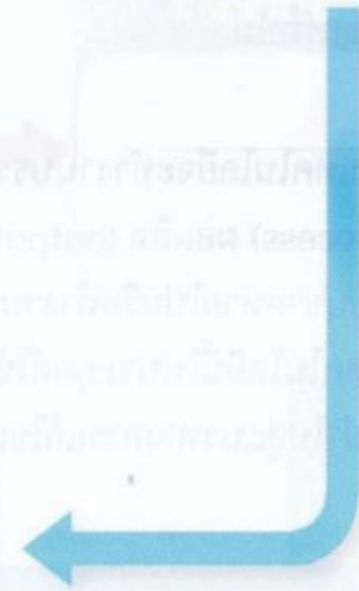
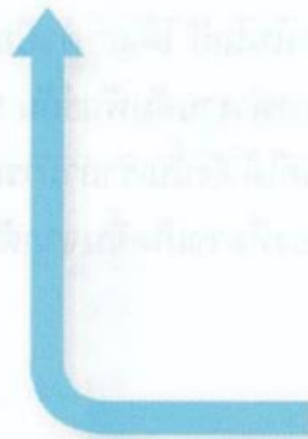


ละอองน้ำจากหัวสปริงเกอร์

# ข้อมูลย้อนกลับ



ค่าความชื้นในดิน



The background is a dark teal gradient. In the corners, there are decorative white line-art patterns resembling circuit traces or data paths, with small circles at the end of the lines.

WHAT KIND OF PROBLEMS CAN WE HAVE WITH  
THE AUTOMATIC WATER SYSTEM?

# AUTOMATIC WATER SYSTEM PROBLEMS

- Some of the problems can be that the water is not going out of the sprinklers
- Or maybe there is too much water going out
- Some of the solutions would be to check if
  - There is a problem with our water source
  - There is a problem with the sprinkler heads
  - There is a problem with the sensor

# CONCLUSION

- In technological systems, all the components (input, process, output and feedback) need to work together to achieve the common objective
- If one of them is not working properly the whole objective might not be what we wanted
- We need to use our knowledge and skills to find the problem and a solution to that problem
- If we understand how the system works, we will find the mistake easier



ANY QUESTIONS?

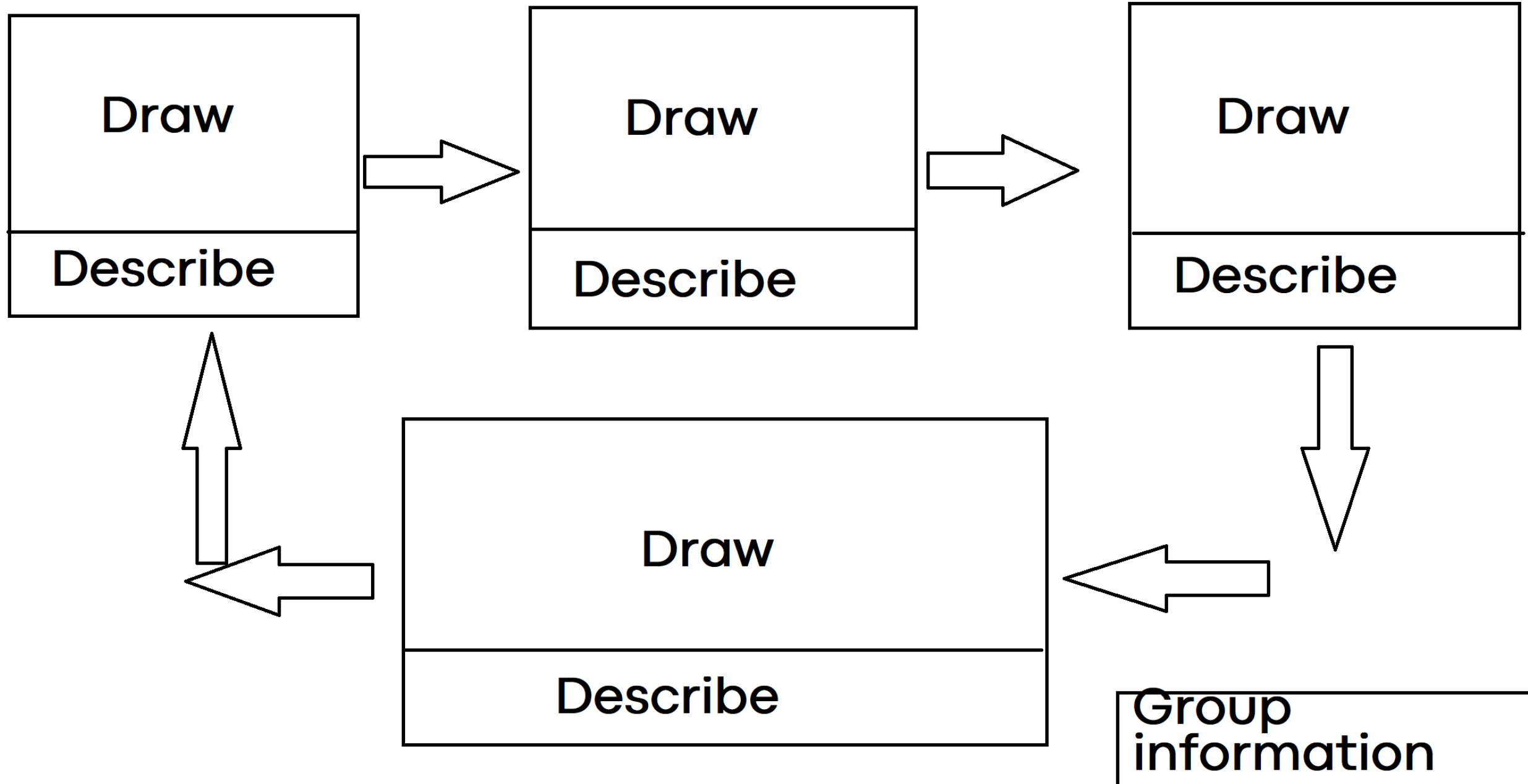


# GROUP WORK

# GROUP WORK

- Divide into 5 groups of 5 students
- Choose a Technological system and make an A3 poster about it where you will draw and describe what is input, process, output and feedback in that system
- Try not to copy from other groups

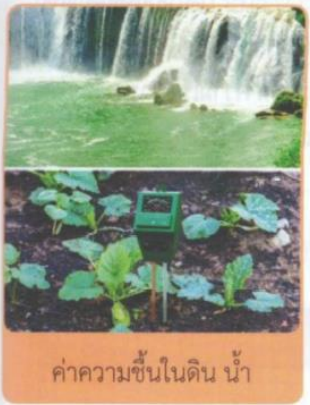
# System



ตัวป้อน

กระบวนการ

ผลผลิต



ข้อมูลย้อนกลับ



ตัวป้อน

กระบวนการ

ผลผลิต



ข้อมูลย้อนกลับ





THE END