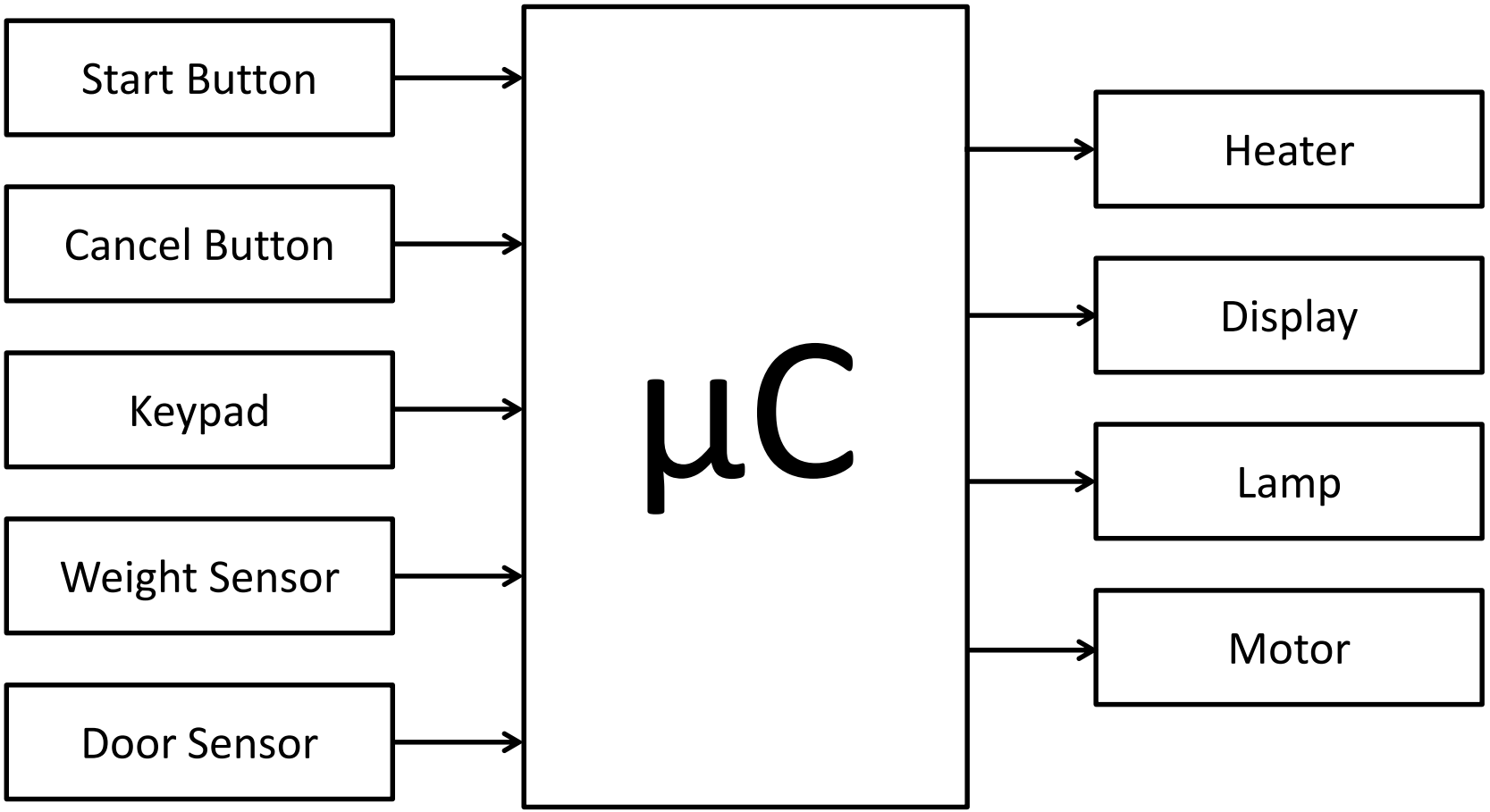
Case Study: Microwave

Overview


Start Button
Cancel Button
Keypad
Weight Sensor
Door Sensor
µC
Heater
Display
Lamp
Motor

Specifications

- Start button starts heating if:
  1. Time is set
  2. Door is closed
  3. Food is in microwave

- When microwave starts:
  - Lamp is ON
  - Heater is ON
  - Motor is ON
  - Display shows remaining time

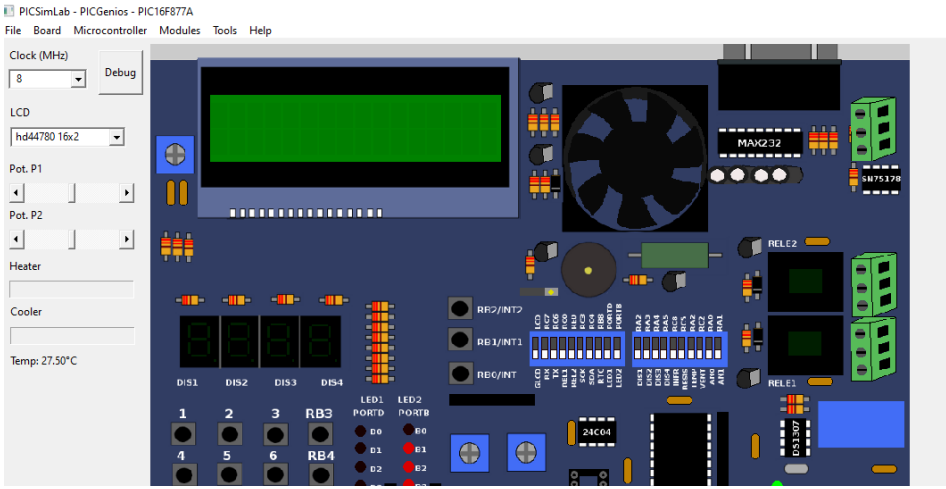
- Cancel button stops heating if heating is working or clears time setting if heating not working

Specifications

- Keypad is used to enter the time of heating
- Display displays time remaining if microwave is heating or time setting if microwave is not heating
- Make any necessary assumptions and do not forget to mention them in your design document

Hardware

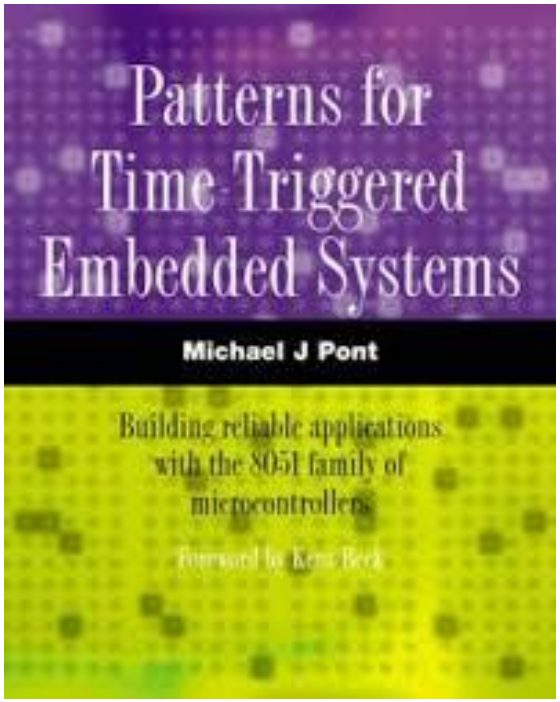
- Use PICSimLab v0.7
- Board: PICGenios, any controller you like; You can use:
  - Keypad
  - LCD or 7 segment display for screen
  - Led for a lamp
  - Fan as motor or any empty pin
  - Push buttons for door sensor and weight sensor to toggle the sensors state (opened to closed, …)
  - Heater or an empty pin as heater
- Use any compiler you want

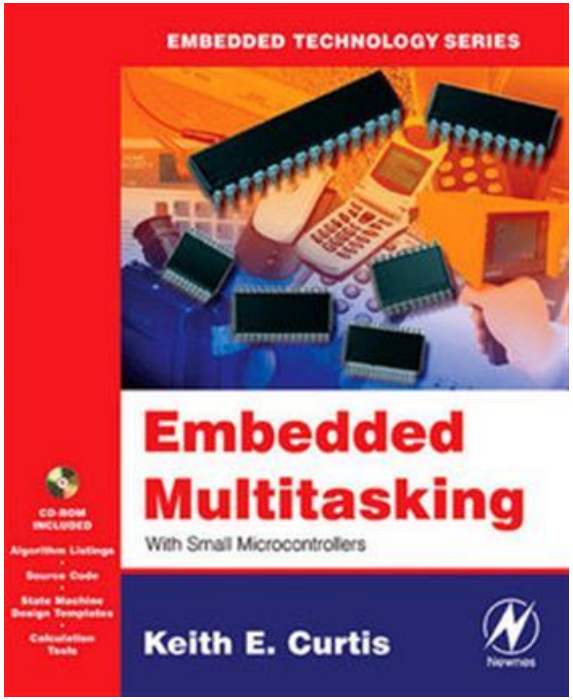


Deliverables

- Your CV
- Project folder that has source code and executables
- Project Documentation (power point explaining design)
  - Check the slides with “Example in the title”
- Delivery is through Internship form only (https://forms.gle/cVDSZTyocd84vqg67)

Suggested Reading





Example: Block Diagram

Example: Dynamic Design/Timeline

Example: Module 1

Function	Type
void MOD_Init(…)	Initialization
void MOD_UpdateSometing(…)	Periodic or Aperiodic Task
void MOD_ISR4Device(…)	ISR
u8 MOD_GetValue(…)	Global or private function

Example: Function M

u8 MOD_Init(in1, in2, …)	
Function description	
in1	Describe in1
in2	Describe in2
…	
Return	Describe return value


thank you
danke
謝謝
ngiyabonga
teşekkür ederim
gracias
tapadh leat
спасибо
Баярлалаа
рахмат
bedankt
dziękuję
obrigado
sukriya
kop khun krap
go raibh maith agat
mochchakkeram
arigatô
dakujem
merci
terima kasih
grazie
감사합니다
ありがとう
мерси
хвала
sagolun
hvala
maururu
dank je
takk
taiku
ευχαριστώ