ECE 4010 Embedded Systems: Tutorial – 1

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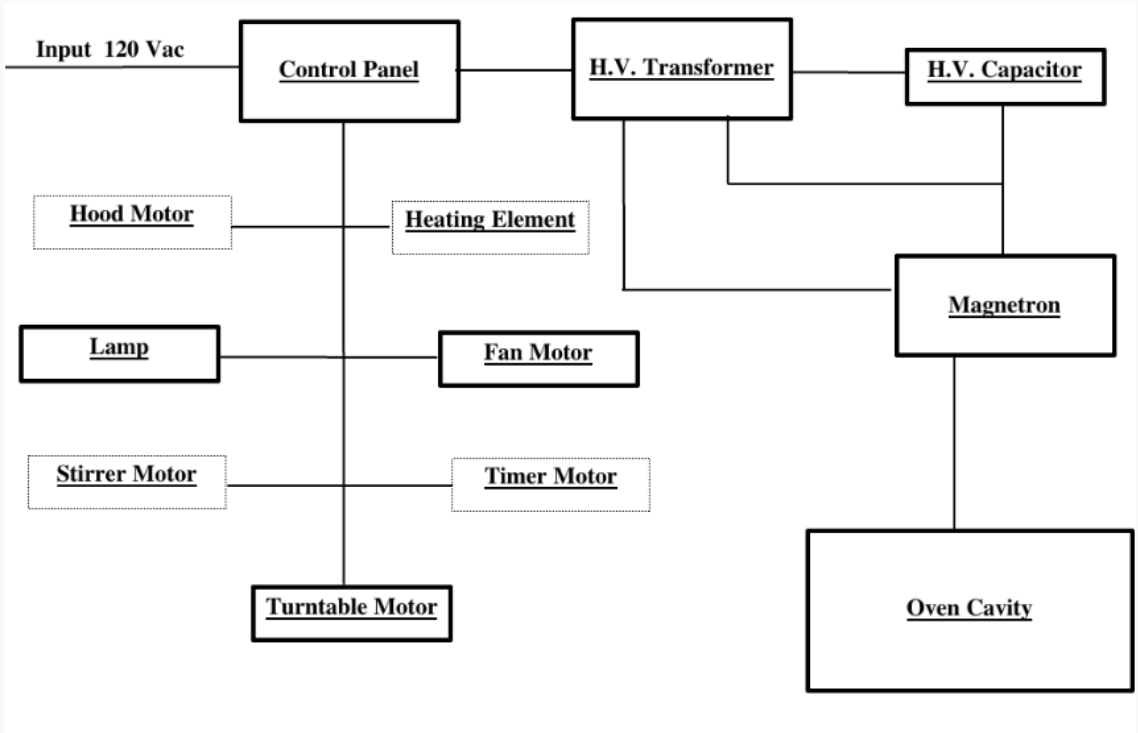
An embedded system for the microwave oven to meet the requirements: Provide the details of the designed embedded system in the following format:

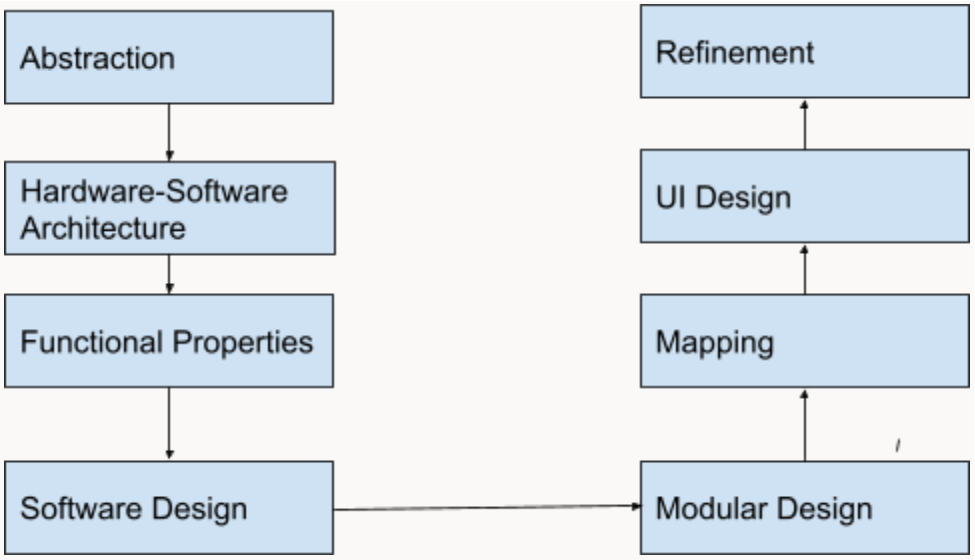
Detailed hardware block diagram for the embedded system.

Components required:

- DoorSensor
- WeightSensor
- Keypad
- Timer
- Heating Element
- Lamp
- Turntable
- Oven Display
- Sleeper
- Software System



Detailed software flow -chart for the operation of the embedded system.



Choice of an appropriate microcontroller with justification.

Depending on the environment, we tend to achieve temperature tolerance. We want devices that withstand extreme temperatures and consume less power at the same time.

Some temperature-tolerant microcontrollers include STMicroelectronics' STM32F103 series, NXP's Kinetis EA series, Renesas' RX24T and RX24U, Infineon's XMC series and AURIX™ series, Microchip's: PIC and AVR microcontrollers, and Texas Instruments' MSP430F2619S-HT

Among the above-mentioned microcontrollers, I would choose **STMicroelectronics' STM32F103 series**

Reasons for choosing **STMicroelectronics' STM32F103 series:**

- ARM 32-bit Cortex - M3 CPU Core
- Clock, reset and supply management
- Up to 80 fast I/O ports
- Up to 9 communication interfaces
- 7 timers
- VBAT supply for RTC and backup registers
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- It consumes less power.