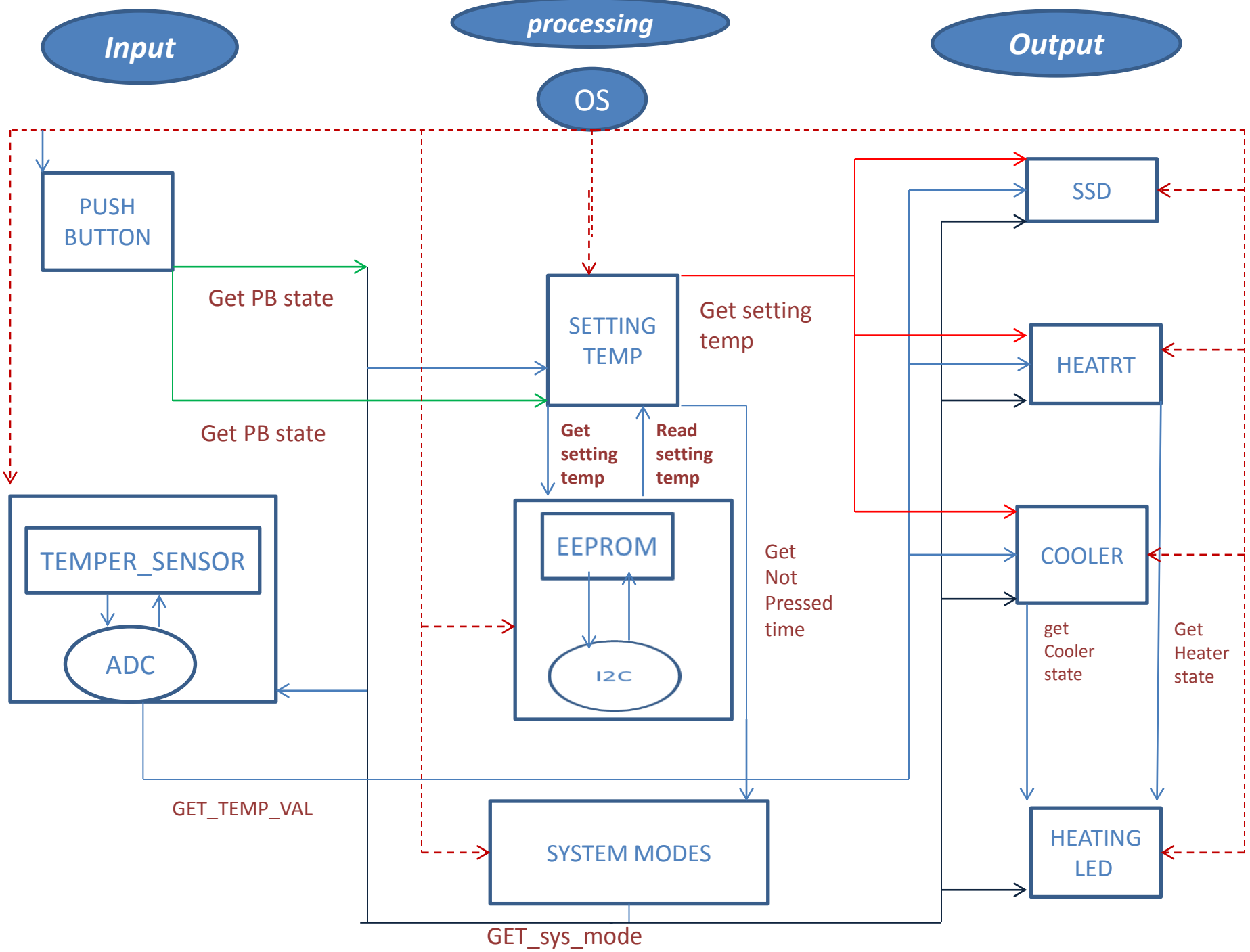
Input
processing
Output
OS
PUSH BUTTON
Get PB state
Get PB state
SETTING TEMP
Get setting temp
SSD
HEATRT
COOLER
HEATING LED
Get setting temp
Read setting temp
EEPROM
I2C
TEMPER_SENSOR
ADC
Get Not Pressed time
get Cooler state
Get Heater state
GET_TEMP_VAL
SYSTEM MODES
GET_sys_mode

Detailed design

- **SSD**
  - SSD_Init
  - SSD_Update
  - SSD_SetSymbol
  - SSD_SetState
  - SSD_GetSymbol
  - SSD_GetState

- **System_modes**
  - SYSTEM_init
  - SYSTEM_update
  - SYSTEM_GetMode
  - SYSTEM_SET_Mode

- **Setting_temp**
  - settingTemp_init
  - settingTemp_update
  - GET_settingTemp
  - GET_NOT_pressed_time

- **Push_Button**
  - PB_Init
  - PB_Update
  - PB_GetState

- **Temp_sensor**
  - Temp_Sensor_Init
  - Temp_Sensor_Update
  - Get_Temp_Res

- **Heater**
  - Heater_Init
  - Heater_Update
  - Set_Heater
  - Get_Heater_Status

- **Cooler**
  - Coller_Init
  - Coller_Update
  - Set_Coller
  - Get_Coller_Status

- **Heating_led**
  - Heating_Led_init
  - Heating_Led_Update
  - Set_Heating_Led
  - Get_Heating_Led

- OS/timer0
  - TMR0_Init
  - TMR0_Update
  - TMR0_Start

- **ADC**
  - ADC_Init
  - ADC_Update
  - ADC_GetResult
  - Start_conversion_Int
  - SSD_GetSymbol
  - SSD_GetState

- **Main.H**

Port .h file

```
#define HEATING_LED_PORT      PORT_B

#define HEATING_LED_pin          3

#define PB_PLUS_PORT          PORT_B
#define PB_MINUS_PORT         PORT_B
#define PB_ON_OFF_PORT        PORT_B

#define PB_PLUS_PIN              0
#define PB_MINUS_PIN             1
#define PB_ON_OFF_PIN            2
```

Timing Analysis:

task	Actions	BCET(ms)	WCET(ms)	Period of Actions (ms)	Periodof Tasks(ms)
Button Push	Update samples Update PB state	~0	~0	20	20
SSD Task	Update_ssd	~0	~0	5	5
Heater task	Update_heater	0	~0	100	100
Cooler task	Update_coller	~0	~0	100	100
Heating led task	Update_led	~0	~0	100	100
Temp Sensor	Update_sensor temp	~0	~0	100	100
System modes task	Update_ System_modes	~0	~0	20	20
Setting Temp task	Update Temp_task	~0	~0	20	20
				Tick(ms)	5
				major cycle	100

Schedulability check

SSD Task @ 5ms

Push Button @ 20ms

Temp sensor @ 100ms

Heater task @ 100ms

Cooler task @ 100 ms

Heating led task @ 100ms

Setting Temp task @ 20ms

System modes task @ 20ms