Modules diagram

|  |
| --- |
| ***LED*** |
| ***+LED\_State : LED\_STATE\_t*** |
| ***+LED\_Init(void) : void***  ***+LED\_Update(void) : void*** |

|  |
| --- |
| ***HEATER*** |
| ***+HEATER\_State : HEATER \_STATE\_t*** |
| ***+ HEATER \_Init(void) : void***  ***+ HEATER \_Update(void) : void*** |

|  |
| --- |
| ***FAN*** |
| ***+FAN\_State : FAN \_STATE\_t*** |
| ***+ FAN \_Init(void) : void***  ***+ FAN \_Update(void) : void*** |

|  |
| --- |
| ***SSD*** |
| ***+Hours\_Tens : u8\_t***  ***+Hours\_Units : u8\_t***  ***+Minutes\_Tens : u8\_t***  ***+Minutes\_Units : u8\_t***  ***-SSD\_Id : SSD\_t*** |
| ***+ SSD \_Init(void) : void***  ***+ SSD \_Update(void) : void***  ***-SSD\_On(SSD\_ID : const SSD\_t) : void***  ***-SSD\_Off(SSD\_ID : const SSD\_t) : void***  ***-SSD\_Refresh(void) : void*** |

|  |
| --- |
| ***DOOR*** |
| ***+DOOR\_State : DOOR\_STATE\_t*** |
| ***+DOOR\_Init(void) : void***  ***+DOOR\_Update(void) : void*** |

|  |
| --- |
| ***WEIGHT*** |
| ***+ WEIGHT\_State : WEIGHT\_STATE\_t*** |
| ***+ WEIGHT\_Init(void) : void***  ***+ WEIGHT \_Update(void) : void*** |

|  |
| --- |
| ***KEYPAD*** |
| ***+Key\_Pressed\_g : KEY\_ID\_t***  ***- Key[MAX\_NO\_OF\_KEYS] : KEY\_t*** |
| ***+ KEYPAD \_Init(void) : void***  ***+ KEYPAD \_Update(void) : void***  ***- KEYPAD\_Update\_Key(KEY\_ID : const KEY\_ID\_t) : void***  ***-*** ***KEYPAD\_Seclect\_Key(ROW : const ROW\_t,***  ***COL : const COL\_t,***  ***KEY\_ID : const KEY\_ID\_t) : void*** |

|  |
| --- |
| ***CONT*** |
| ***-CONT\_Mode: CONT\_MODE\_t*** |
| ***+ CONT\_Init(void) : void***  ***+ CONT \_Update(void) : void*** |

**HEATER**

**CONT**

**KEYPAD**

**CO\_SCH(Tick=10ms)**

***HEATER***

***ELEMNET***

***KEYPAD***

***ELEMENT***

***State***

***State***

**FAN**

***Keys***

***FAN***

***ELEMENT***

***State***

***State***

***State***

***Time***

***LED***

***ELEMENT***

**LED**

***WEIGHT***

***SENSOR***

**WEIGHT**

**DOOR**

**SSD**

***SSD***

***ELEMENT***

***DOOR***

***SENSOR***

Time modeling

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | |  |  |  |  |  |  |  |  |  |  | | --- | | ***0 10 20 Time(ms)*** | |

|  |  |
| --- | --- |
|  |  |

|  |  |
| --- | --- |
|  | ***KEYPAD@10ms*** |
|  | ***WEIGHT@20ms*** |
|  | ***DOOR@20ms*** |
|  | ***CONT@20ms*** |
|  | ***SSD@10ms*** |
|  | ***HEATER@20ms*** |
|  | ***FAN@20ms*** |
|  | ***LED@20ms*** |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| *Task* | *Action* | *BCET*  *(ms)* | *WCET*  *(ms)* | *Periode Of Action*  *(ms)* | *Periode Of Task*  *(ms)* |
| *KEYPAD \_Update* | ***Update\_Buttons*** | ***0.477*** | ***0.492*** | ***10*** | ***10*** |
| *WEIGHT \_Update* | ***Update\_Weight\_State*** | ***0.093*** | ***0.107*** | ***20*** | ***20*** |
| *DOOR \_Update* | ***Update\_Door\_State*** | ***0.090*** | ***0.107*** | ***20*** | ***20*** |
| *CONT \_Update* | ***Control the States of the modules*** | ***0.031*** | ***0.096*** | ***20*** | ***20*** |
| *SSD \_Update* | ***Update\_Time*** | ***0.767*** | ***0.767*** | ***10*** | ***10*** |
| *HEATER \_Update* | ***Update\_Heater\_State*** | ***0.108*** | ***0.108*** | ***20*** | ***20*** |
| *FAN \_Update* | ***Update\_Fan\_State*** | ***0.103*** | ***0.103*** | ***20*** | ***20*** |
| *LED \_Update* | ***Update\_Led\_State*** | ***0.099*** | ***0.099*** | ***20*** | ***20*** |
| *TICK(ms)* | | | | | ***10*** |
| *Major Cycle(ms)* | | | | | ***20*** |

|  |
| --- |
| ***Minor Cycle = TICK = GCD(10, 20, 20, 20, 10, 20, 20, 20) = 10 ms***  ***Major Cycle = LCM(10, 20, 20, 20, 10, 20, 20, 20) = = 20 ms***  ***Major Cycle = 20 / 10 = 2 Minor Cycle***  ***CPU Load = ∑WCET / Major Cycle = 1.879/20 = 0.09395***  ***CPU Load % = 0.09395 \* 100 = 9.395 %*** |

***If Stop***

***pressed***

***If Weight exist Door Closed and Time is Set and Start Pressed***

***If Stop Pressed OR Time is Out OR Door Opened OR Weight not exist***