|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| *Task* | *Action* | *BCET*  *(ms)* | *WCET*  *(ms)* | *Periode Of Action*  *(ms)* | *Periode Of Task*  *(ms)* |
| *SW\_Update* | ***SW\_UP\_Update***  ***SW\_DOWN\_Update SW\_SETTING\_Update*** | ***0.014*** | ***0.428*** | ***20*** | ***20*** |
| *TIME\_Update* | ***Automatic\_Time\_Update Manual\_Time\_Update*** | ***0.013*** | ***0.126*** | ***1000***  ***20*** | ***20*** |
| *SSD\_Update* | ***SSD\_Update\_Mode***  ***SSD\_Update\_Blinking***  ***SSD\_Refresh*** | ***1.08*** | ***1.23*** | ***5*** | ***5*** |
| *TICK(ms)* | | | | | ***5*** |
| *Major Cycle(ms)* | | | | | ***20*** |

Timing Analysis

***Minor Cycle = GCD(P1, P2, P3) = GCD(20, 20, 5) = 5 ms***

***Major Cycle = LCM(P1, P2, P3) = LCM(20, 20, 5) = 20 ms***

***Major Cycle = 4 Minor Cycle***

***20***

***15***

***10***

***5***

***0***

***Time (ms)***

***CPU Load = ( WCET(P1 + P2 + P3) / Major Cycle) \* 100***

***CPU Load = ( (0.428 + 0.126 + 1.23)/20)\*100 = 8.92 %***

***SW @ 20 ms***

***TIME @ 20 ms***

***SSD@ 5 ms***

Modules Diagram

|  |
| --- |
| ***SW*** |
| ***+SW\_Period\_Is\_Ended : Bool\_t***  ***-SW\_State[SW\_MAX\_NUMBER] : SW\_State\_t*** |
| ***+SW\_Init(void) : void***  ***+SW\_Update(void) : void***  ***+SW\_UP\_Get\_State(void) : SW\_State\_t***  ***+SW\_DOWN\_Get\_State(void) : SW\_State\_t***  ***+SW\_SEETING\_Get\_State(void) : SW\_State\_t***  ***-SW\_Get\_State(SW\_ID : const SW\_t) : SW\_State\_t***  ***-SW\_Update\_State(SW\_ID : const SW\_t) : void*** |

|  |
| --- |
| ***TIME*** |
| ***-Hours : u8\_t***  ***-Minutes : u8\_t***  ***-Seconds : u8\_t*** |
| ***+TIME\_Init(void) : void***  ***+TIME\_Update(void) : void***  ***-Auto\_Time\_Update(void) : void***  ***-Manul\_Time\_Update(void) : void*** |

|  |
| --- |
| ***SSD*** |
| ***+SSD\_Mode : SSD\_Mode\_t***  ***-Hours : u8\_t***  ***-Minutes : u8\_t***  ***-Seconds : u8\_t***  ***-SSD\_Off\_Period : u8\_t***  ***-SSD\_On\_Period : u8\_t***  ***-SSD\_Id : SSD\_t*** |
| ***+SSD\_Init(void) : void***  ***+SSD\_Update(void) : void***  ***+SSD\_Set\_Hours(HOURS : const u8\_t) : void***  ***+SSD\_Set\_Minutes(MINUTES: const u8\_t) : void***  ***+SSD\_Set\_Seconds(SECONDS: const u8\_t) : void***  ***-SSD\_On(SSD\_ID : SSD\_t) : void***  ***-SSD\_Off(SSD\_ID : SSD\_t) : void***  ***-SSD\_Time(TIME : const u8\_t) : void***  ***-SSD\_Update\_Mode(void) : void***  ***-SSD\_Update\_Blinking(void) : void***  ***-SSD\_Refresh(void) : void*** |

Block Diagram

|  |
| --- |
| ***SSD\_HOURS*** |
| ***SSD\_MINUTES*** |
| ***SSD\_SECONDS*** |

|  |
| --- |
| ***SW\_UP*** |
| ***SW\_DOWN*** |
| ***SW\_SETTING*** |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| |  | | --- | | ***SSD*** |  |  | | --- | | ***TIME*** |  |  | | --- | | ***SW*** |  |  | | --- | | ***OS(Timer2)*** |   ***Mode***  ***Time***  ***SW\_States***  ***SW\_States*** |