## Layered architecture:

| Application |
| --- |
| ECUAL |
| MCAL |
| Microcontroller |

ECUAL: sensors and actuators independent on target contain( Motors , Leds and Buttons)

MCAL : this contains all drivers and APIS (Timer and Dio)

## System modules:

| Application | | |
| --- | --- | --- |
| Motors | Leds | Buttons |
| Timer | Dio | |
| Microcontroller | | |

Timer: will interact with motors to determine the time of moving and stop

Dio: will interact with leds and buttons to determine state of both

Motors : control in wheel to determine angle and speed

**Timer _Init : this function to make initialization for Initialize the specified timer with the given interval**

# APIs:

## Timer_API:

**Timer _Init : this function for Initialize the specified timer with the given interval**

**Timer _StartTimer : this function to start timer and take number of seconds which want to reach**

**Timer _CheckTimeIsElapsed : check if timer reach on maximum or not**

**Timer _GetElapsedTime: function to get time elapsed to determine the time for each state motor**

## Dio_API:

**dio_init: this function take pin number and port name to determine state of pin**

**dio_write: this function take pin number to write data on bin**

**dio_read: this function take pin number to read data on bin**

## Motor_API:

**motor_init : function to initialize state of pin which motor will be in it**

**motor_start: function take pin number to make motor to start moving and take percentage of speed**

**motor_stop : function to give order to motor to stop**

**motor_degree : function to determine degree of rotate of motor**

## Button_API:

**PB1_init : function to determine of pin to make it input due to button**

**PB1_start : function tell motor to start moving**

**PB2_stop : function to make motors to stop immediately**

## Leds_API:

**led_init: this function take pin number and state of this pin will be output**

**ledon : this function take pin number and let led to be on**

**ledof: this function take pin number and let led to be off**