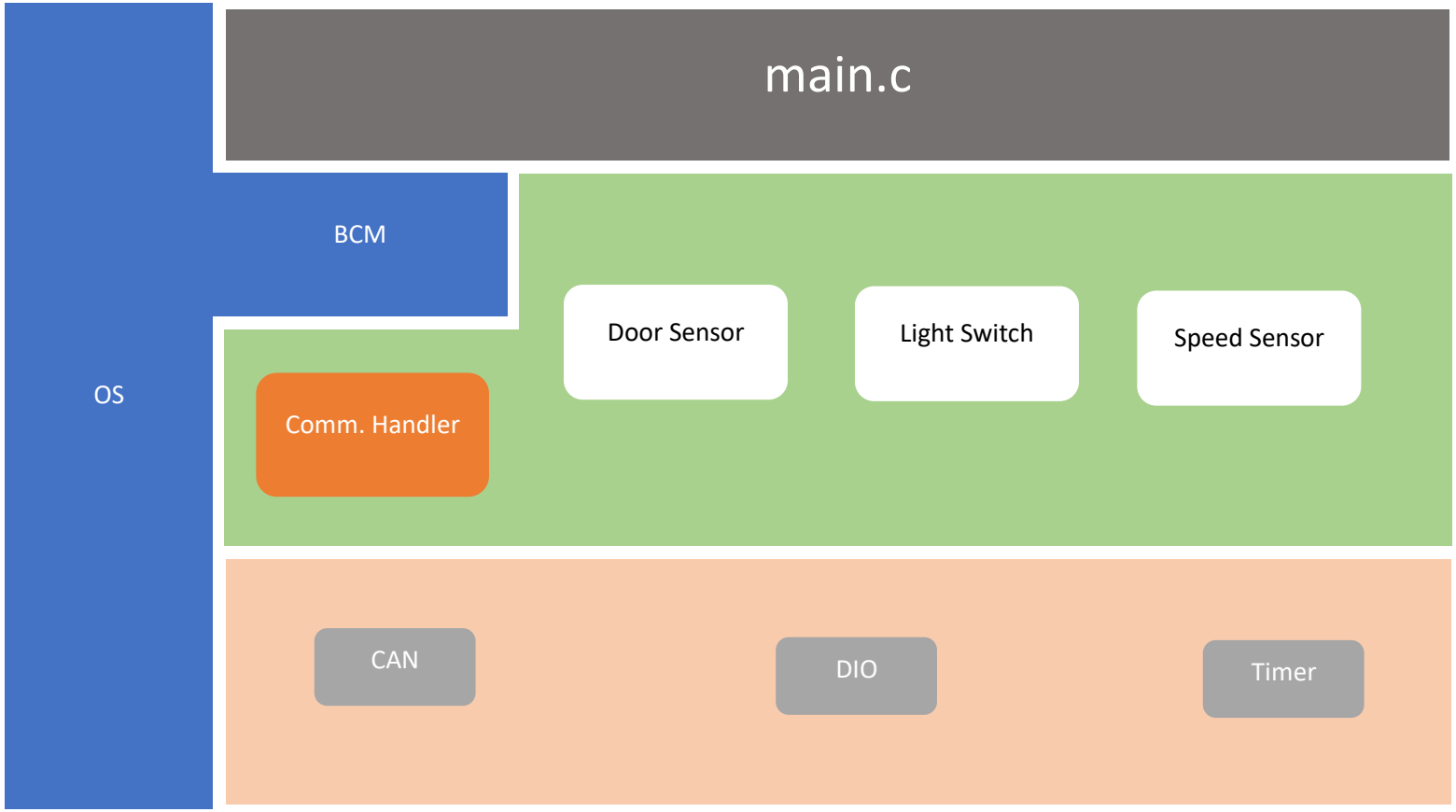
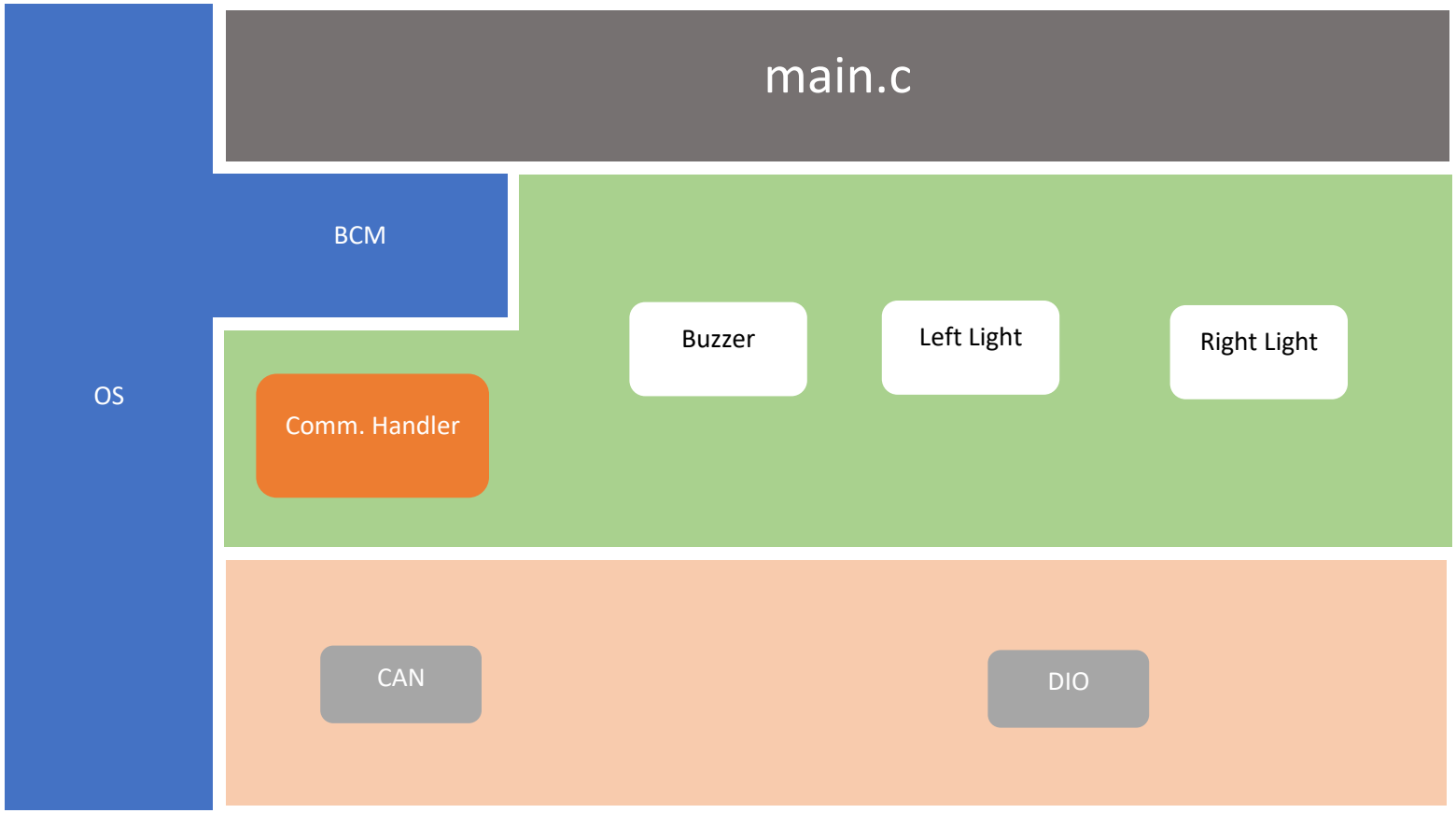
ECU1:


main.c
BCM
OS
Door Sensor
Light Switch
Speed Sensor
Comm. Handler
CAN
DIO
Timer

APIs:

1. Door sensor
   - state door(void): returns HIGH if door is open and LOW if door is closed
2. Light switch
   - state switch(void): returns HIGH if switch is on and LOW if switch is off
3. Speed sensor
   - state motion(void): returns HIGH if the car is moving and LOW if car is stationary
4. comm. Handler
   - void send_data(uint32 data): stores the readings of all sensors and send it to CAN peripheral
5. CAN
   - CAN_init(void): initialize CAN communication protocol
   - CAN_send(<parameters>,uint32 data): specify information about the sender and the data being sent
6. DIO
   - DIO_init(DIO_dir direction): initialize DIO for the specified pin and its direction (input/output)
   - DIO_Read(DIO_port port,DIO_pin pin): read specified pin value
7. Timer
   - Timer_init(timer_name timer): initialize the required timer and its interrupt
   - Timer_SetTick(uint32 ticks): set the time required for 1 tick (in this project we will set it to 5 ms)
   - Void Timer_Handler(void): ISR

ECU2:


main.c
BCM
OS
Buzzer
Left Light
Right Light
Comm. Handler
CAN
DIO

APIS:

1. Lights (left and right)
   - Void Lights (bool Value): turns lights on or off
2. Buzzer
   - Void Buzzer (bool Value): turns buzzer on or off
3. comm. Handler
   - void send_data(uint32 data): stores the readings of all sensors and send it to CAN peripheral
4. CAN
   - CAN_init(void): initialize CAN communication protocol
   - CAN_send(<parameters>,uint32 data): specify information about the sender and the data being sent
5. DIO
   - DIO_init(DIO_dir direction): initialize DIO for the specified pin and its direction (input/output)
   - DIO_Write(DIO_port port,DIO_pin pin, bool Value):

   write the specified pin with required value (high/low)

enums:

DIO_port: names of ports in the ecu (e.g.: PORT0,PORT1,PORTA,PORTV,…)

DIO_pin: names of pins in the port (e.g.: pin1,pin2,pin3,…)

Bool: consists of HIGH and LOW values

timer_name: names of timers (e.g.: T1A,T1B,…)