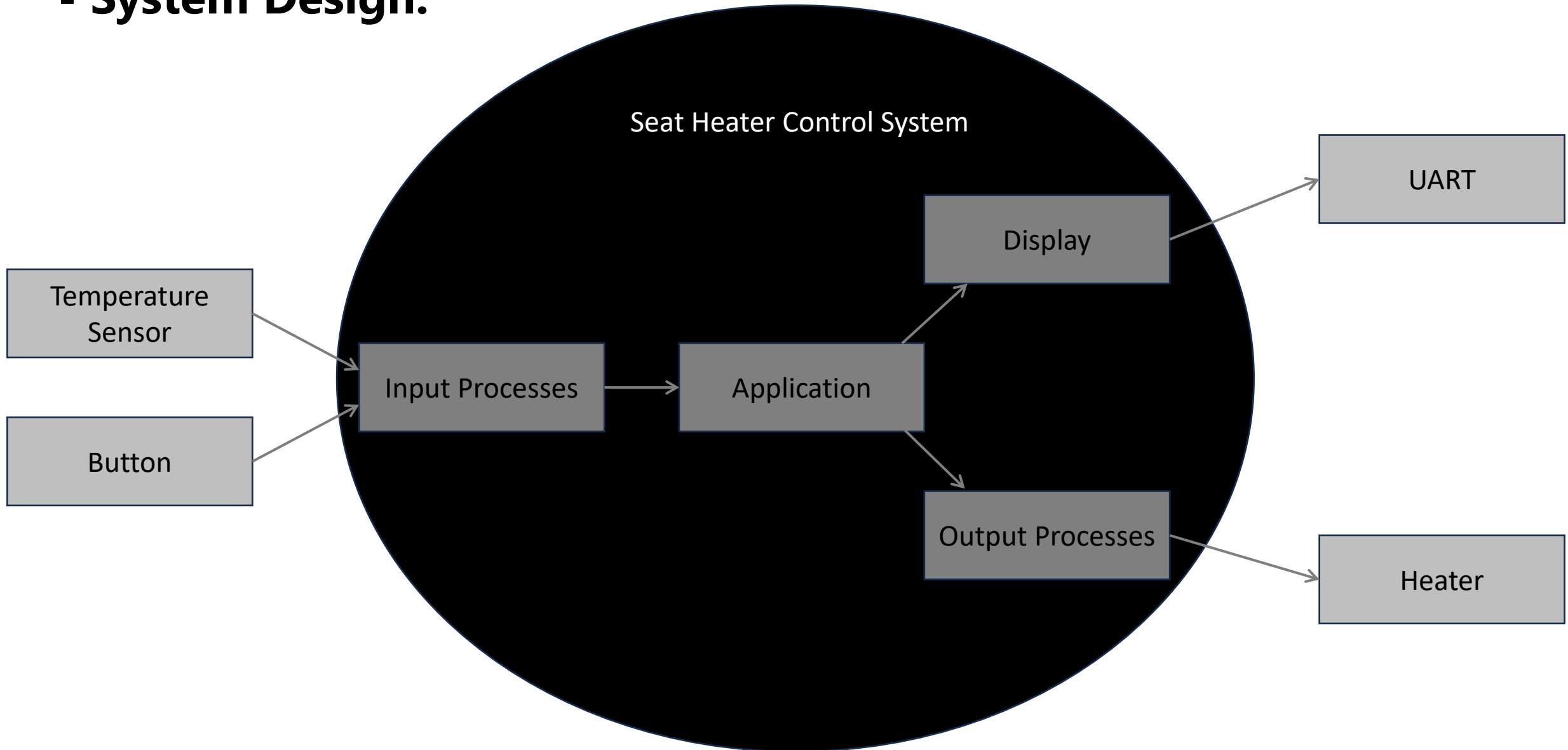


## - System Design:



# - Tasks Information:

Task Name	Description	Type	Periodicity (ms)	Events that task waits	Events that task sets
setHeatingLevel	The task is responsible for determining the heating level and the desired temperature based on the number of button presses.	Event-based		SW1_INTERRUPT_EVENT_BIT SW2_INTERRUPT_EVENT_BIT SW3_INTERRUPT_EVENT_BIT	DRIVER_HEATING_LEVEL_EVENT_BIT PASSENGER_HEATING_LEVEL_EVENT_BIT
readTemperature (Driver)	The task is responsible for determining the driver seat current temperature based on a temperature sensor.	Periodic	1000		DRIVER_CURRENT_TEMPERATURE_EVENT_BIT DRIVER_TEMPERATURE_FAILURE_EVENT_BIT
readTemperature (Passenger)	The task is responsible for determining the passenger seat current temperature based on a temperature sensor.	Periodic	1000		PASSENGER_CURRENT_TEMPERATURE_EVENT_BIT PASSENGER_TEMPERATURE_FAILURE_EVENT_BIT
setHeaterIntensity	The task is responsible for determining the heater intensity depending on the desired temperature and the current temperature.	Event-based		DRIVER_HEATING_LEVEL_EVENT_BIT DRIVER_CURRENT_TEMPERATURE_EVENT_BIT PASSENGER_HEATING_LEVEL_EVENT_BIT PASSENGER_CURRENT_TEMPERATURE_EVENT_BIT	
displayData	The task is responsible for printing the current temperature, the heating level, and the heater state by sending them through the UART.	Periodic	500		
temperatureFailureHandler	The task is responsible for disabling the heater and turning the red led on to inform the user that there is an issue in the temperature sensor.	Event-based		DRIVER_TEMPERATURE_FAILURE_EVENT_BIT PASSENGER_TEMPERATURE_FAILURE_EVENT_BIT	
runTimeMeasurements	The task is responsible for calculating all task execution times, cpu load and resource lock time per task for each resource.	Periodic	500		

## - Shared Resources:

Resource Name	Tasks share the resource	Method used for the exclusive access
UART	displayData runTimeMeasurements	Mutex

## - System Output and Run time measurement results:

```
COM8 x
Driver Seat      Passenger Seat
Heating Level:   HIGH          HIGH
Current Temperature: 44          45
Heater Intensity: DISABLED      DISABLED
-----
Idle task execution time is 253433 msec
setHeatingLevel task execution time is 1 msec
readTemperature (Driver) task execution time is 55 msec
readTemperature (Passenger) task execution time is 78 msec
setHeaterIntensity task execution time is 33 msec
displayData task execution time is 44211 msec
temperatureFailureHandler task execution time is 29 msec
runTimeMeasurements task execution time is 138361 msec
CPU Load is 41%
UART Lock Time by the displayData task is 13656 msec
UART Lock Time by the runTimeMeasurements task is 4297 msec
```

# - Simso Simulation Results:

