```
 1 import random
 2
 3 class VehicleSensor: # Super 1
 4     system_health = None
 5     sensorStatus = None
 6     sensorID = None
 7
 8     def __init__(self):
 9         self.system_health = random.randint(1, 100)
10         self.sensorStatus = False
11
12     def changeStatus(self):
13         self.sensorStatus = not self.sensorStatus
14
15     def fixSystemHealth(self):
16         if(self.system_health < 50):
17             self.system_health += 50
18
19 class UltrasonicSensor(VehicleSensor): # Derived 1
20     uSensorRange = None
21
22     def __init__(self):
23         super().__init__()
24         self.sensorID = "HCSR" + str(random.randint(
   10, 100))
25         self.uSensorRange = "4m"
26
27 class CameraSensor(VehicleSensor): # Derived 2
28     cSensorRange = None
29
30     def __init__(self):
31         super().__init__()
32         self.sensorID = "OV" + str(random.randint(
   1000, 10000))
33         self.cSensorRange = "75m"
34
35 class RadarSensor(VehicleSensor): # Derived 3
36     rSensorRange = None
37
38     def __init__(self):
39         super().__init__()
```

```
40          self.sensorID = "RCWL-" + str(random.randint(
    1000, 10000))
41          self.rSensorRange = "10m"
42
43  class TemperatureSensor(VehicleSensor): # Derived 4
44      currentTemp = None
45
46      def __init__(self):
47          super().__init__()
48          self.sensorID = "A" + str(random.randint(1000
    , 10000))
49          self.currentTemp = random.randint(5, 121)
50
51      def fixTemperature(self):
52          if(self.currentTemp > 100):
53              self.currentTemp -= 35
54
55  class SpeedSensor(VehicleSensor): # Derived 5
56      currentSpeed = None
57
58      def __init__(self):
59          super().__init__()
60          self.sensorID = "DS" + str(random.randint(10
    , 100)) + "B" + str(random.randint(10, 100))
61          self.currentSpeed = str(random.randint(0, 161
    )) + " MP/H"
62
63      def setSpeed(self, currentSpeed):
64          self.currentSpeed = str(currentSpeed) + " MP/
    H"
```