ELECTRIC VEHICLES (EV) – FIRE EXTINGUISHING SYSTEM ARDUINO CODE(JAVA)

```
import java.util.Random;

public class SmartCoolingSystem {
   // Simulated pump states
   private static boolean pump1On = false;
   private static boolean pump2On = false;
   private static boolean usePump1 = true;

   public static void main (String[] args) throws InterruptedException {
      Random random = new Random();

      System.out.println("Smart Cooling System Simulation Started...");

      while (true) {
         // Simulate sensor readings
         float temperature = 25 + random.nextFloat() * 10;
         float humidity = 40 + random.nextFloat() * 30;

         // Display data (like LCD)
         System.out.println("------------------------------");
         System.out.printf("Temp: %.2f °C\n", temperature);
         System.out.printf("Humidity: %.2f %%\n", humidity);

         // Control logic
         if (temperature >= 32.0) {
            System.out.println("Temperature is high, activating pump...");
            if (usePump1) {
               activatePump1();
            } else {
               activatePump2();
```

```
            }
            usePump1 = !usePump1; // Alternate pumps
            Thread.sleep(5000); // delay to avoid rapid switching
        } else {
            stopPumps();
        }

        // Delay between readings (simulates sensor delay)
        Thread.sleep(2000);
    }
}

// Simulate activating Pump 1
private static void activatePump1() throws InterruptedException {
    pump1On = true;
    System.out.println("Pump 1 Activated...");
    Thread.sleep(10000); // Pump runs for 10 seconds
    pump1On = false;
    System.out.println("Pump 1 Deactivated.");
}

// Simulate activating Pump 2
private static void activatePump2() throws InterruptedException {
    pump2On = true;
    System.out.println("Pump 2 Activated...");
    Thread.sleep(10000);
    pump2On = false;
    System.out.println("Pump 2 Deactivated.");
}

// Stop both pumps (safety)
```

```
    private static void stopPumps() {
        if (pump1On || pump2On) {
            pump1On = false;
            pump2On = false;
            System.out.println("All pumps stopped (Temperature normal).");
        }
    }
}
```