The following are the Cruise Control System requirements.

**1. Input Requirements**

1.1 General Requirements for Input

1.1.1 The C.C. system shall accept all inputs within 2 seconds after engine starts.

1.1.2 The C.C. system shall accept electric power from the alternator.

1.1.3 The C.C system shall accept direct current from the car battery to support logging after engine shut down.

How CC accept power in different situations?

1.2 Requirements for Input from Driver

1.2.1 The C.C. system shall accept the driver’s activation of the system.

1.2.2 The C.C. system shall accept the driver’s deactivation of the system.

1.2.3 The C.C. system shall accept every setting of speed by the driver (or limited to 25-120 mph configurable).

1.2.4 The C.C. system shall accept driver’s **increase of** the set speed.

1.2.5 The C.C. system shall accept driver’s decrease of the set speed.

1.3 Requirements for Input from Sensors

1.3.1 The C.C. system shall receive information from sensors about brake application continuously every 0.5 seconds.

1.3.2 The C.C. system shall accept signals from sensors (clutch, brake, or any other environmental signals for approval of activation or cursing).

The input should contains information from sensors. And different actions should be done by CC after receiving information.

1.3.3 The C.C. system shall receive the time and date from the car’s clock every second.

CC needs to be aware of the current time.

1.4 Requirements for Input from Throttle Control (EMS)

1.4.1 The C.C. system shall receive the current speed from Engine Management System (throttle) continuously every 1 second.

CC needs to be aware of the current speed.

**2. Output Requirements**

2.1 User Feedback

2.1.1 The C.C. system shall provide visual feedback to the user about activation.

2.1.2 The C.C .system shall provide visual feedback to the user about deactivation.

2.1.3 The C.C. system shall provide visual feedback to the user about setting of speed.

2.2 Throttle Control

2.2.1 The C.C. system shall provide an activation request to the throttle (EMS).

2.2.2 The C.C. system shall provide a deactivation request to the throttle (EMS).

2.2.3 The C.C. system shall provide an adjustment (increase or decrease) request to the throttle up to the allowable positions of speed.

Control information should be sent to throttle as output.

2.3 Sensor Control

2.3.1 The C.C. system shall provide an approval request to the sensors before activation.

The usability of sensors should be approved before CC activation.

**3. Administration Requirements**

3.1 The C.C. system shall provide a physical interface for Technicians to access the unit.

3.2 The C.C. system shall log all C.C. state changes (events) with time.

3.3 The C.C. system software shall be configurable by the technician.

**4. Non-Functional Requirements**

4.1 Reliability Requirements:

4.1.1 The C.C. system hardware shall have a 4 nine (99.99%) availability.

4.1.2 The C.C. system software shall have a 5nine (99.999%) availability.

4.2. Performance Requirements:

4.2.1 The C.C. system shall have an accuracy range of ±1 mph of the set speed.

4.2.2. The C.C. system shall activate within 0.5 second after the activation signal has been sent by the user.

4.2.3. The C.C. system shall deactivate within 0.5 second after the deactivation signal has been sent by the user, brake or clutch.

4.3 Security Requirements:

4.3.1 The C.C. system shall not provide any interface for remote access (such as Bluetooth).

4.3.2 The C.C. system shall only be accessible only to authorized dealers via hard-wired interface and be password protected.

4.3.3. The C.C. System shall adhere to the safe and secure communication protocol specified by the manufacturer, industry, and governments.