Title: # Central Doors Locking Training

Purpose: **Internship -training for students**

Scope: **Embedded C Training**

Project	Author
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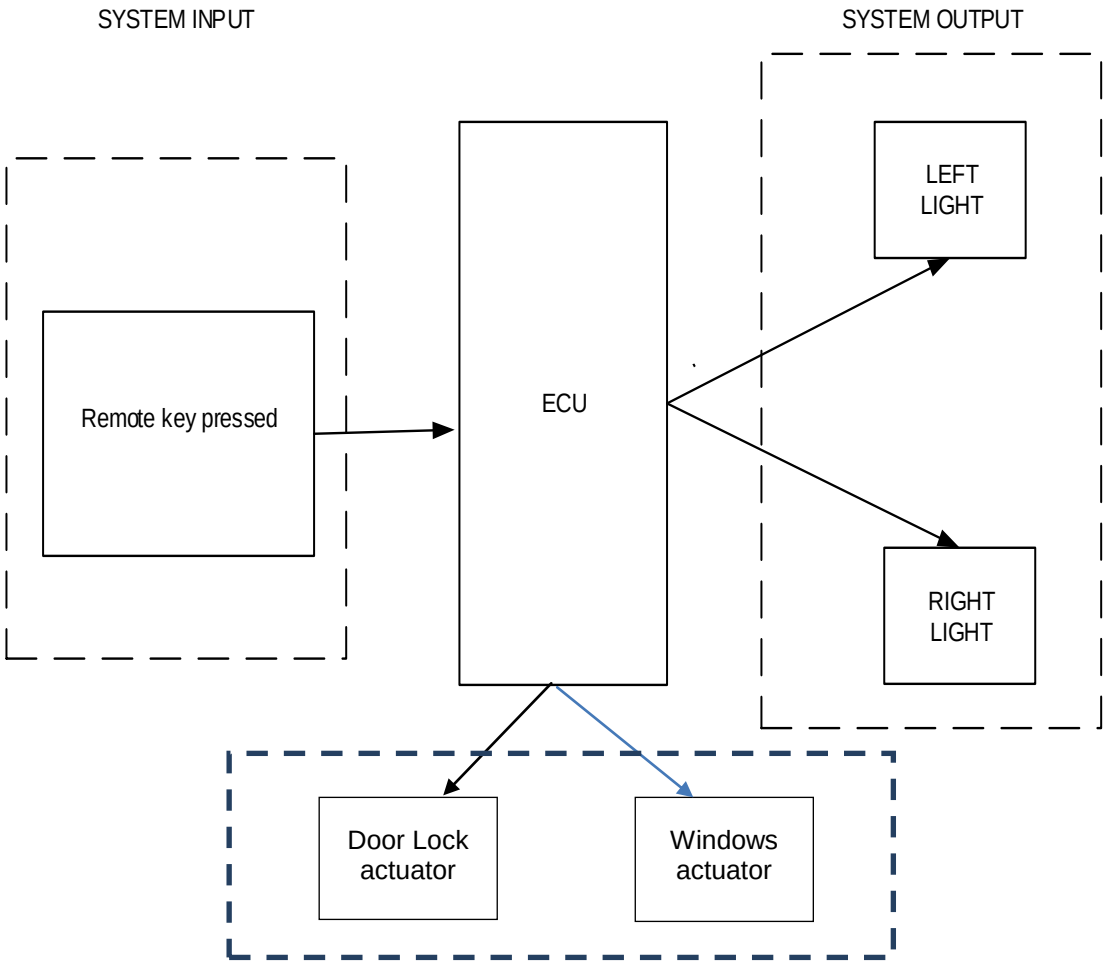
1 System Requirements

This chapter describes the system functional requirements. The embedded system is comprised out of an electronic part and a software one. Therefore there will be specified in the following chapters separate requirements for electronics and for software.

1.1 General purpose of the system

The car's doors will be locked, double locked or unlocked when is pressed remote key.

1.2 Schematic block of the system



2 Requirements

2.1 REQ200: Module name

The module shall be named CDL.

The following functionality is requested:

2.2 REQ201: Central Door Locking Modes

The doors shall have the following possible states:

- Locked
- Double-locked
- Unlocked

2.3 REQ202: Activation of Locked mode

When the user presses the lock switch once for at least 800ms and release it again, the doors shall be locked if the doors are currently unlocked.

2.4 REQ203: Effect of Locked mode

Entry into locked mode shall be signaled by flashing the lights once with an On-Phase of 300ms and Off-Phase of 700ms.

2.5 REQ204: Activation of Double - Locked mode

When the user presses his remote key once for 100ms to 800ms and release it again, the doors shall be double - locked if the doors are currently locked.

2.6 REQ205: Effect of Double - Locked mode

Entry into double-locked mode shall be signaled by flashing the lights three times with an On-Phase of 300ms and Off-Phase of 700ms.

2.7 REQ206: Activation of Unlocked mode

When the user presses his remote key once for at least 800ms, the doors shall be unlocked if the doors are currently locked or double-locked.

2.8 REQ207: Effect of Unlocked mode

Entry into unlocked mode shall be signaled by flashing the lights twice with an On-Phase of 300ms and Off-Phase of 700ms.

2.9 REQ208: Cyclic routine

The main routine of the software shall be running within a 20ms task.

2.10 REQ209: Display info

Any pressed button and the current system state should be displayed on a LCD display

2.10 REQ210: Actuators control

Entering in any system state should be done together with actuators activation:

- Lock mode -> Door lock actuator spin clockwise for 1 second;

- Double lock mode -> Door lock actuator spin clockwise for one more second and Windows actuator spin anti-clockwise for 3 seconds

- Unlock mode -> Door lock actuator spin anti- clockwise for one more second or for 2 seconds if it was previously in double lock mode. Windows actuator spin clockwise for 3 seconds if system is on Unlock mode and key is continuously pressed.

2.11 REQ010: Security start

The application should start only if a code is introduced from a keypad or a IR remote control