REMOTE KEYLESS ENTRY (RKE)

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1 REQUIREMENTS

1.1 REMOTE KEYLESS ENTRY

1.1 DESCRIPTION

Remote keyless entry (RKE) system is a system designed to remotely lock or unlock access to automobiles. Over 70% of the vehicles made today come with a remote keyless entry (RKE) system either standard or as an option. RKE systems are also a high volume after-market accessory. Most remote keyless entry systems alarm the vehicle against theft and lock and unlock the doors and trunk. Some include remote start and car finder functions. Remote keyless systems consist of a key fob transmitter and a receiver inside the vehicle.

1.2 IDENTIFYING FEATURES

By depending upon the number of times the button pressed;

- It should lock and unlock the car.
- It should activate and deactivate the car alarm
- It should activate the approach light of car.

1.3 REQUIREMENTS

1.3.1 High Level Requirements:

ID	Description
HLR 1	Remote keyless system shall be used to lock the system
HLR 2	Remote keyless system shall be used to unlock the system
HLR 3	Remote keyless sytem shall be used to activate or deactivate the alarm
HLR 4	Remote keyless system shall be used to indicate lights
HLR 5	Remote keyless system shall be resistant to unauthorized access

1.3.2 Low Level Requirements

ID	Low Level Requirements for HL1		ID	Low Level Requirements for HL2
LLR1.1	All the LEDs shall on at the same time		LLR2.1	All the LEDs shall off at the same time

ID	Low Level Requirements for HL3		ID	Low Level Requirements for HL4
LLR3.1	All the LEDs shall on in the clockwise manner		LLR4.1	All the LEDs shall on in anticlock wise manner

ID	Low Level Requirements for HL5
LLR5.1	Implementing the encryption and rolling algorithm

2.1 SWOT ANALYSIS

STRENGTH

- Easy to operate
- User friendly
- More safety
- Less Cost

WEAKNESS

- It is up to particular range of distance only.
- We are unable to know status of car when we are away from it.

OPPORTUNITIES

- Wide range of application in automobile industries.
- Huge demand in car safety applications.
- Demand in the field of Smart Home applications

THREATS

- Unable to do multiple operations at a time.
- Less accurate timing.

4.1 5W'S 1H

WHAT

This is a Wireless Remote key to control the car.

WHEN

When the user want to lock/unlock the car and to perform other operations.

WHERE

It can be used in car controlling applications.

WHO

People who are having the car.

WHY

In order to access the car easily.

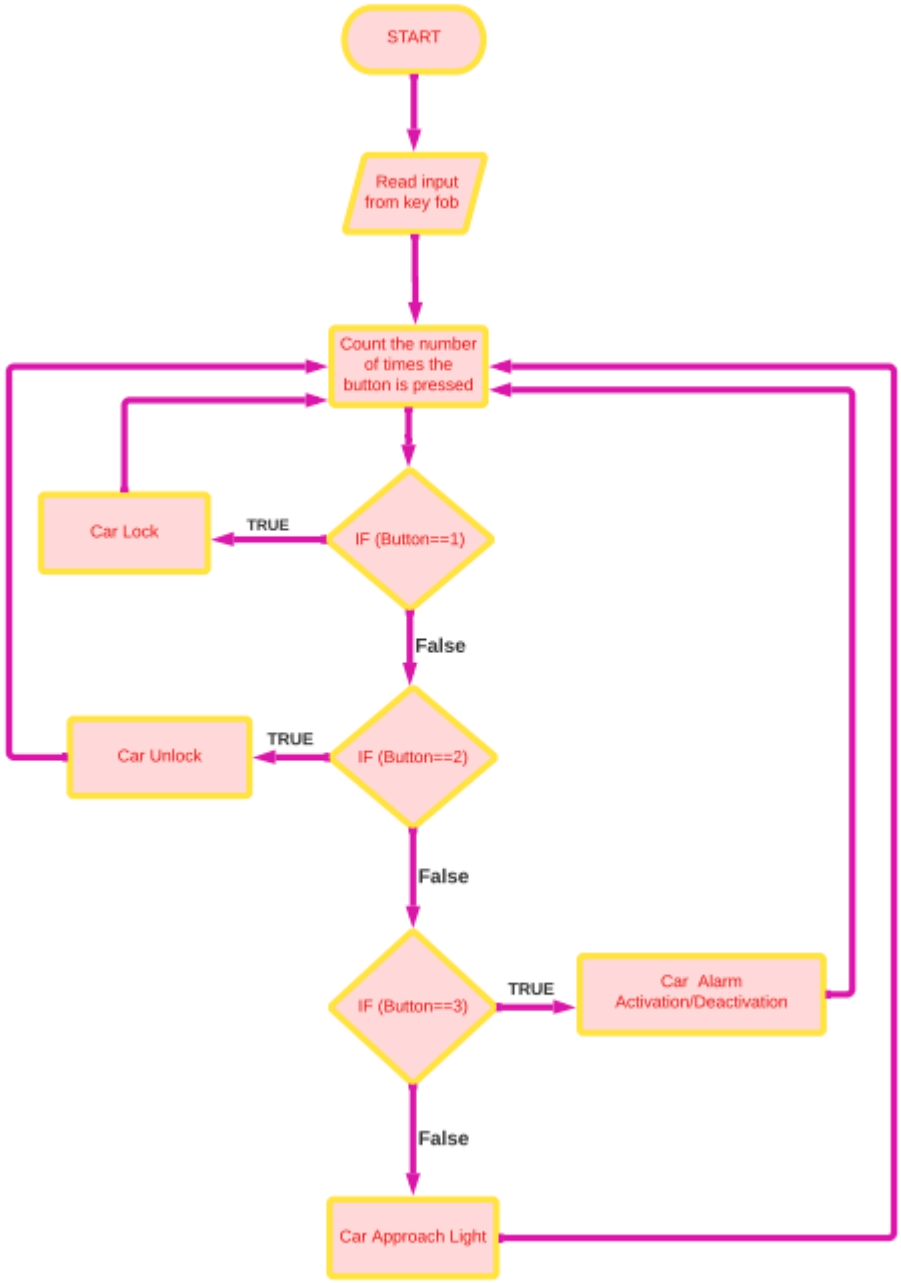
HOW

By using Wireless Remote key.

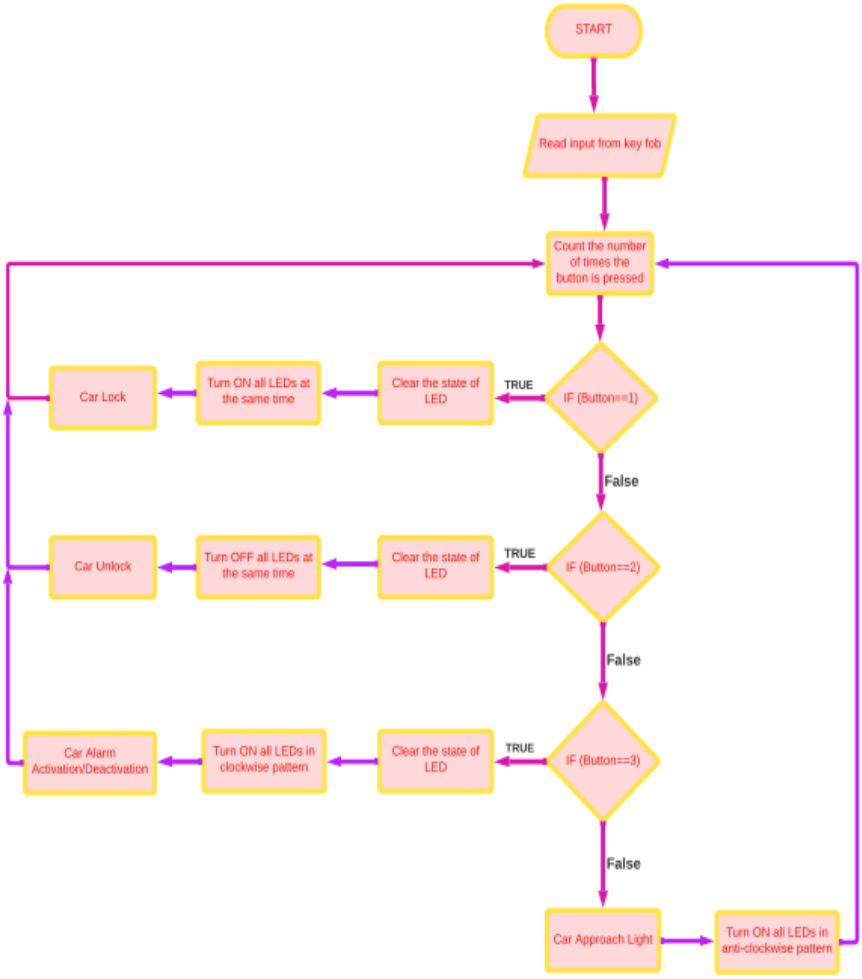
2 ARCHITECTURE

2.1 BEHAVIOURAL DIAGRAMS

2.1.1 HIGH LEVEL BEHAVIOURAL DIAGRAM

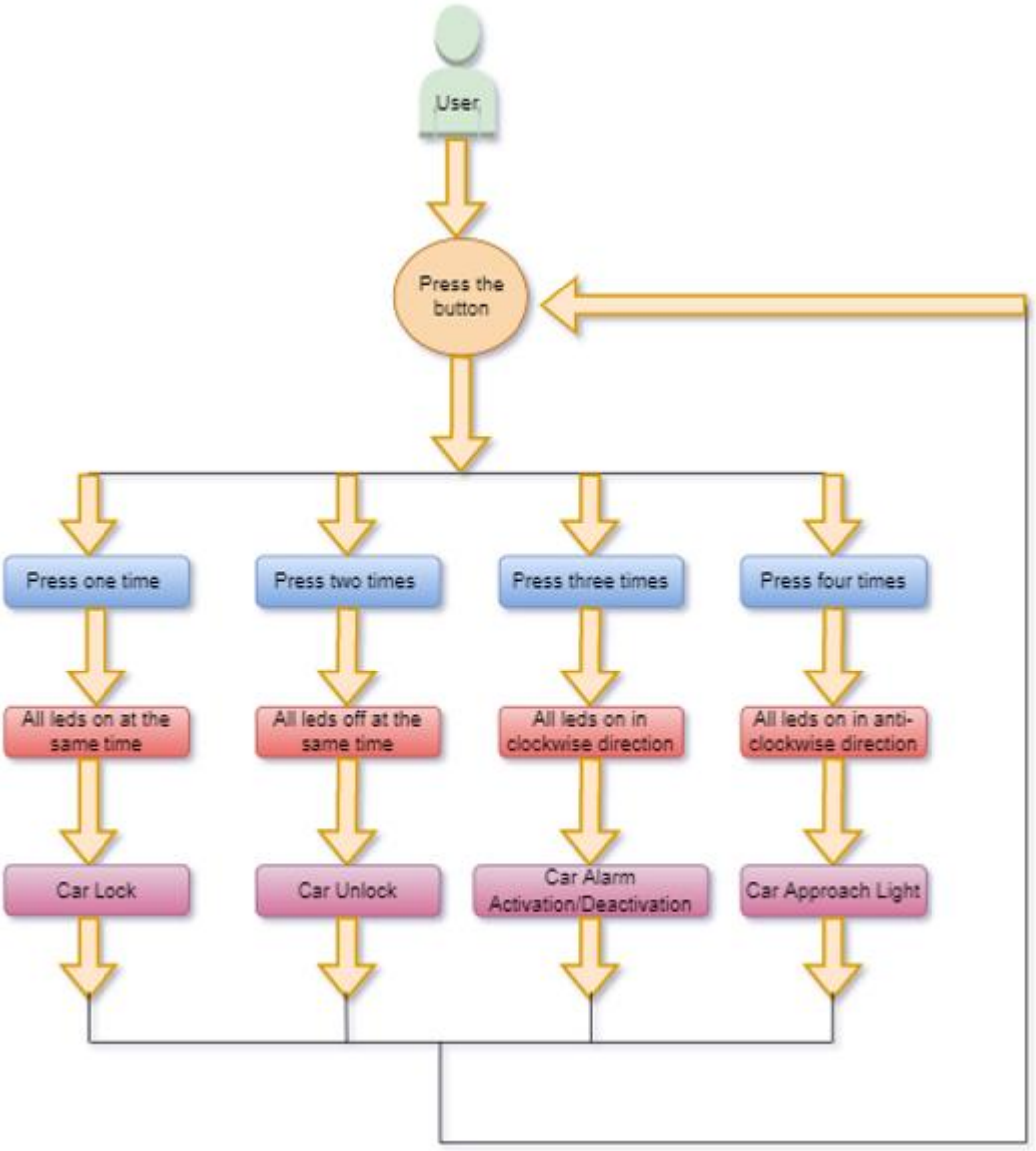


2.1.2 LOW LEVEL BEHAVIOURAL DIAGRAM

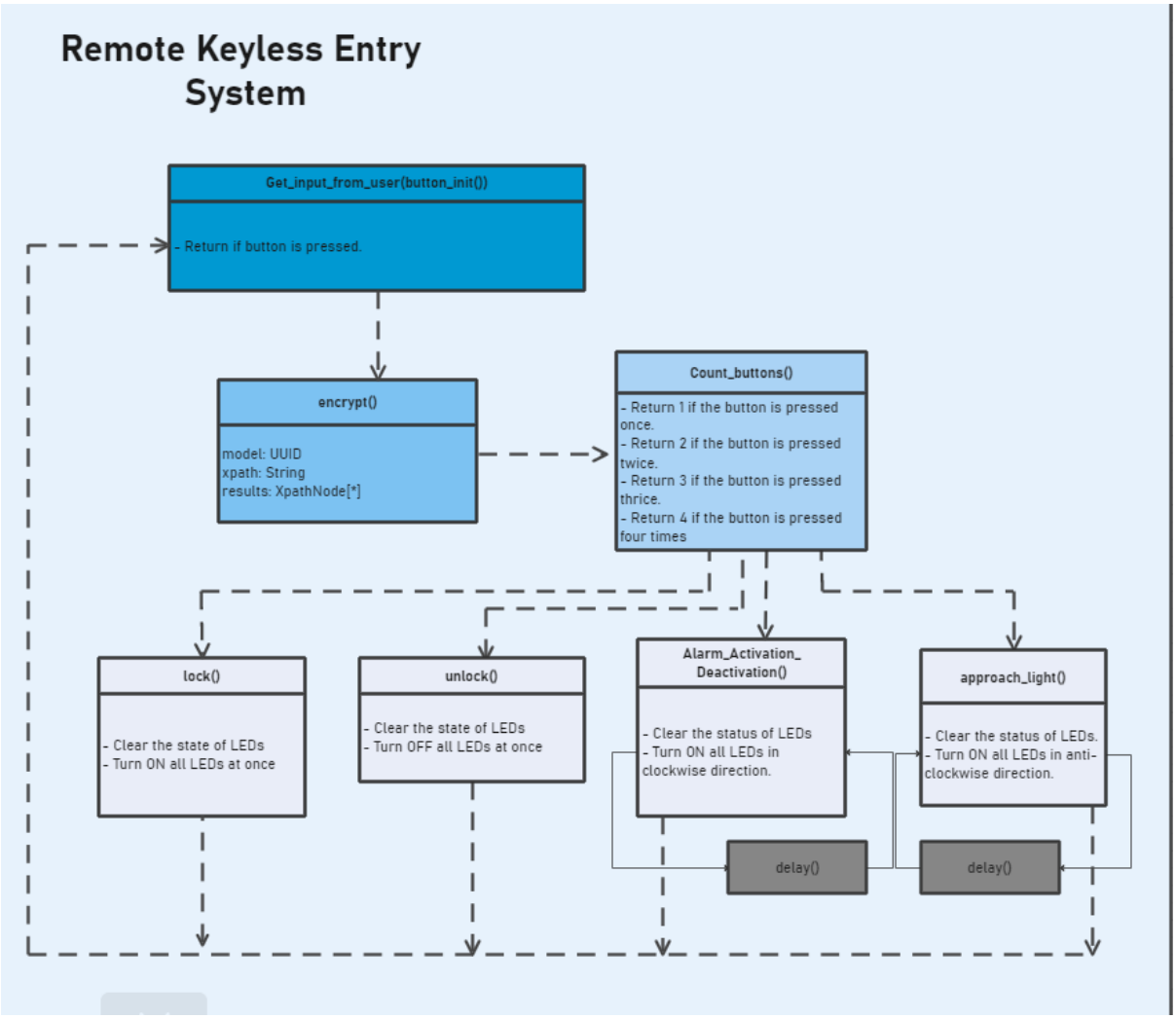


2.2 STRUCTURAL DIAGRAMS

2.2.1 HIGH LEVEL STRUCTURAL DIAGRAM



2.2.2 LOW LEVEL STRUCTURAL DIAGRAM



5 APPLICATIONS:

1. Automotive application : Remote keyless entry systems provide car owners with a degree of convenience, making the task of physically inserting a key unnecessary.
2. Smart home: A keyless entry system offers enhanced security and greater convenience for people with mobility issues and those who find themselves arriving at the front door with their hands full.
3. Toys: Remote keyless system are used in toys.
4. Bidirectional communication.