PROJECT REPORT

Design and Simulation of Circuits and Embedded Systems

Project Title: BiCom System

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Content

Problem Statement: BiCom System

2.1 A BiCom system is the extention of the unidirectional RKE to bidirectional RKE system. Typical BiCom status information transmitted to the keyfob are: window status, alarm status, car battery info, door status .As we know that there is RKE system which is only unidirectional here we use BiCom system which can be bidirectional.

Here it is similar to RKE where it is used for locking and unlocking of automobiles but there it is only of unidirectional but here it is used as bidirectional means here BiCom operates by radio waves on a particular frequency bidirectionally unlike RKE where it acts unidirectionally here it also provide entire car status on a LED where we can manage all the operations of an automobile.

1.1 Description

Now a days as we are noticing that many of the automobiles work on this framework it is widely used for remotely lock or unlock vehicles.Here as said similar to RKE but different in functionality.The difference in functionality is BiCom system is the extention of the unidirectional RKE to bidirectional RKE system. keyfob -> car (like a unidirectional RKE system) car -> keyfob (car status information for displaying on the keyfob by LED or display) Typical BiCom status information transmitted to the keyfob are: Print window status (Blue switch on- All led on at the same time).Print alarm status - (Blue switch press two times- All led off at the same time.Print car battery info – (Blue switch press three times- All led on in clockwise manner).Print Door status (Blue switch press four times- All led on in anti-clockwise manner).These are the major points we come across when we compare both the systems.

2. Requirements

a. High Level Requirements

|id	Description
HR01	Function to perform window status
HR02	Function to perform alarm status
HR03	|Function to get Battery information
HR04	|Function to get Battery information

b. Low Level Requirements

|id	Description
LR01	Press switch once to turn on all led's at a time
LR02	Press switch twice to turn off all led's at a time
LR03	Press switch thrice to blink of all led's in clockwise manner
LR04	Press switch four times to blink of all led's in anticlockwise manner

2.3. SWOT

Fig 2.1 SWOT Analysis

2.4. 4W's & 1H

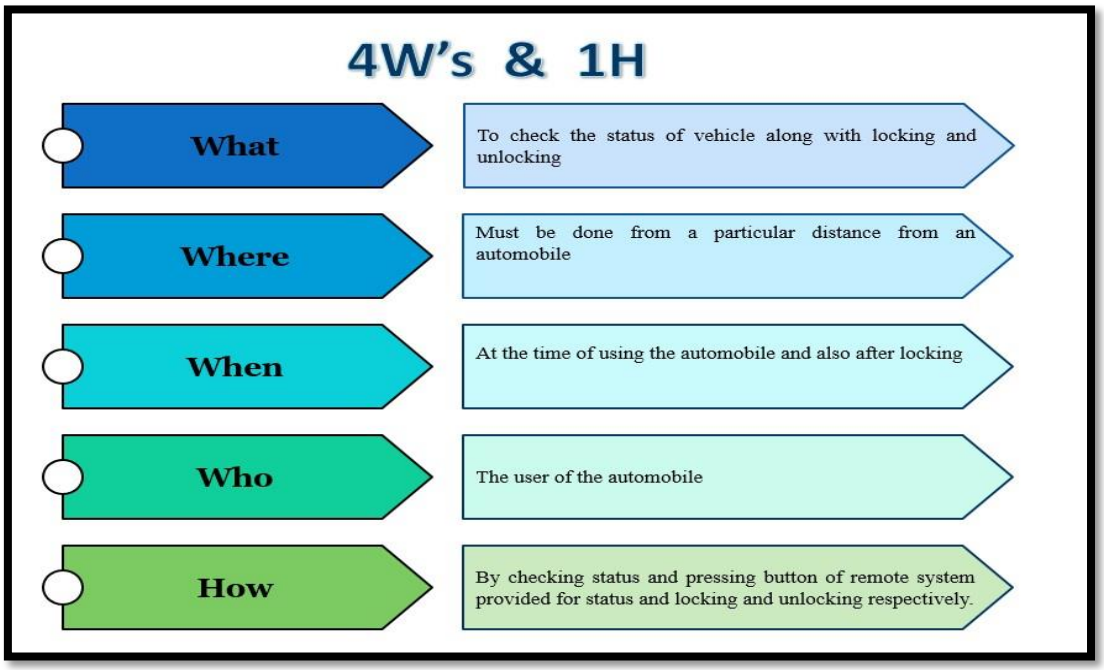

Fig 2.2 4W and 1H

2. Architecture

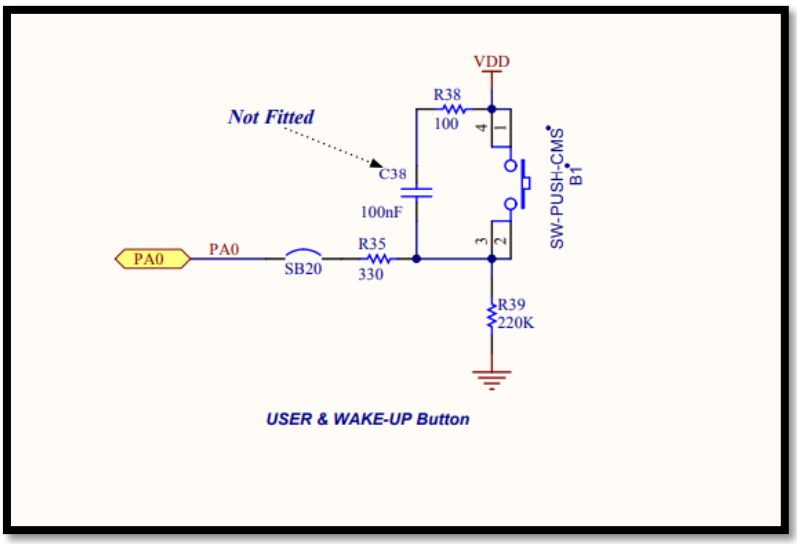

Fig 2.3 User and wake up Button circuit

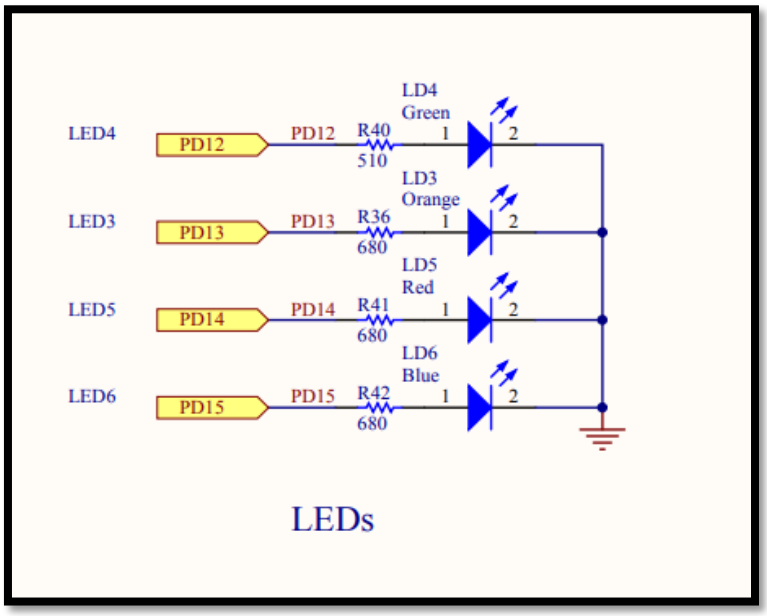

Fig 2.4 LED circuit

3. Test plan and Output

Test ID	Description	i/p	Expected o/p	Actual o/p	Status
HL_1	Function to execute Window status	Press Blue Button once	All Leds ON	All Leds ON	pass
HL_2	Function to execute alarm status	Press Blue Button twice	All Leds OFF	All Leds OFF	pass
HL_3	Function to execute battery info	Press Blue Button Thrice	All led on in clockwise manner	All led on in clockwise manner	pass
HL_4	Function to execute door status	press Blue Button four times	All led on in clockwise manner	All led on in clockwise manner	Pass

4. Output

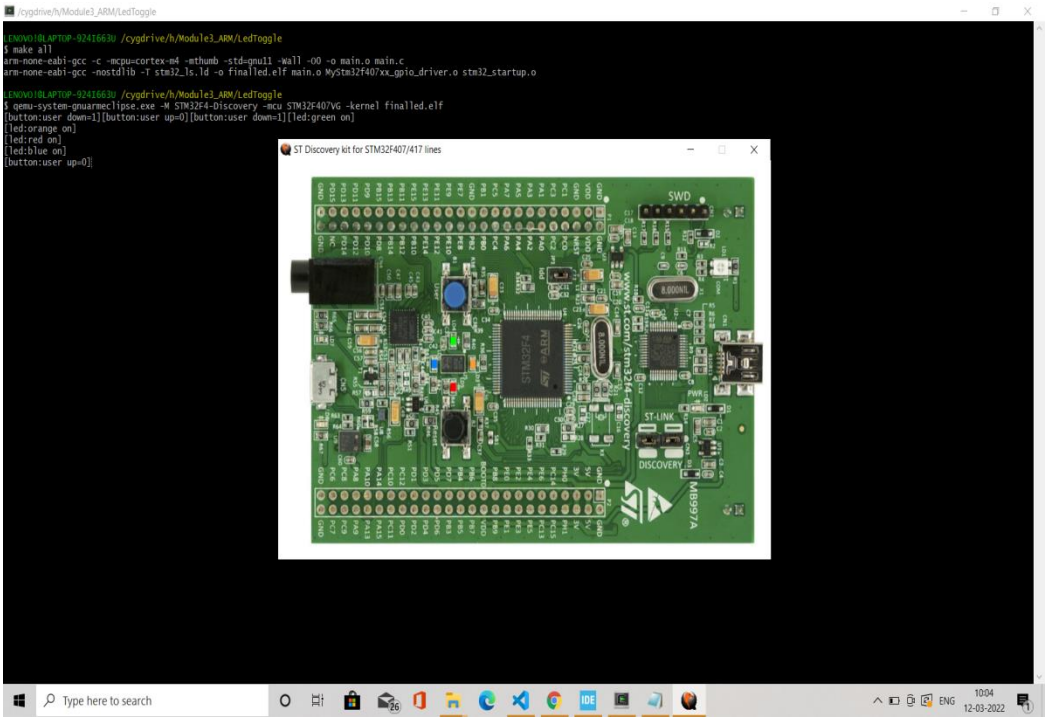

Fig 4.1 LED ON

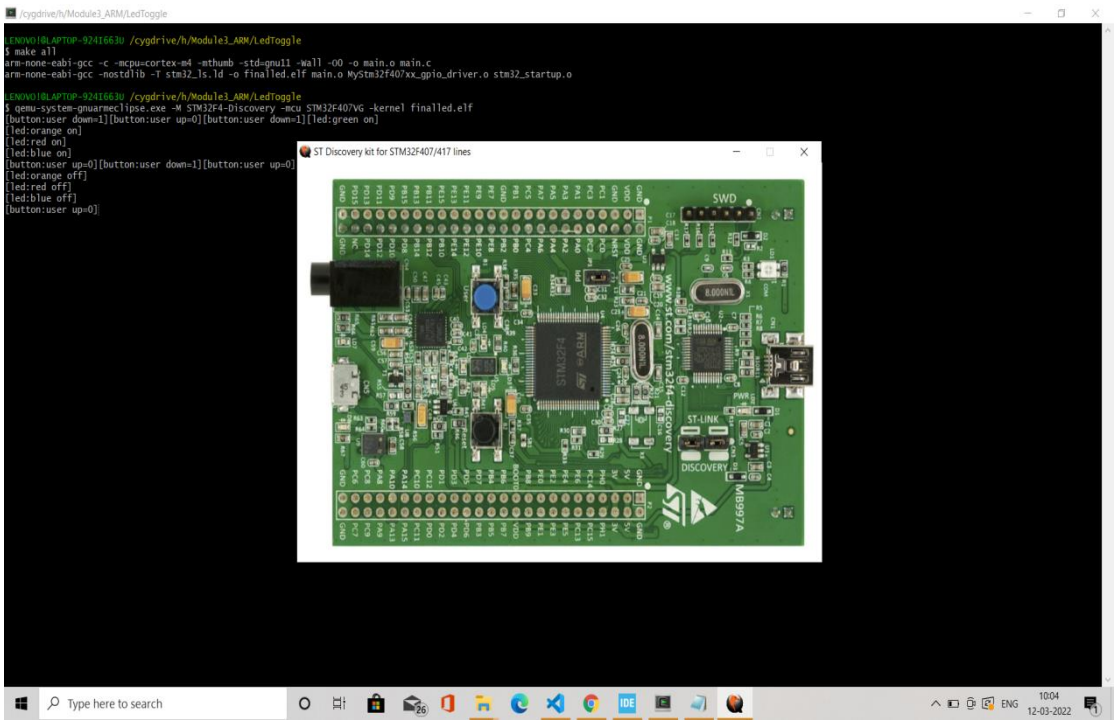

Fig 4.2 LED OFF

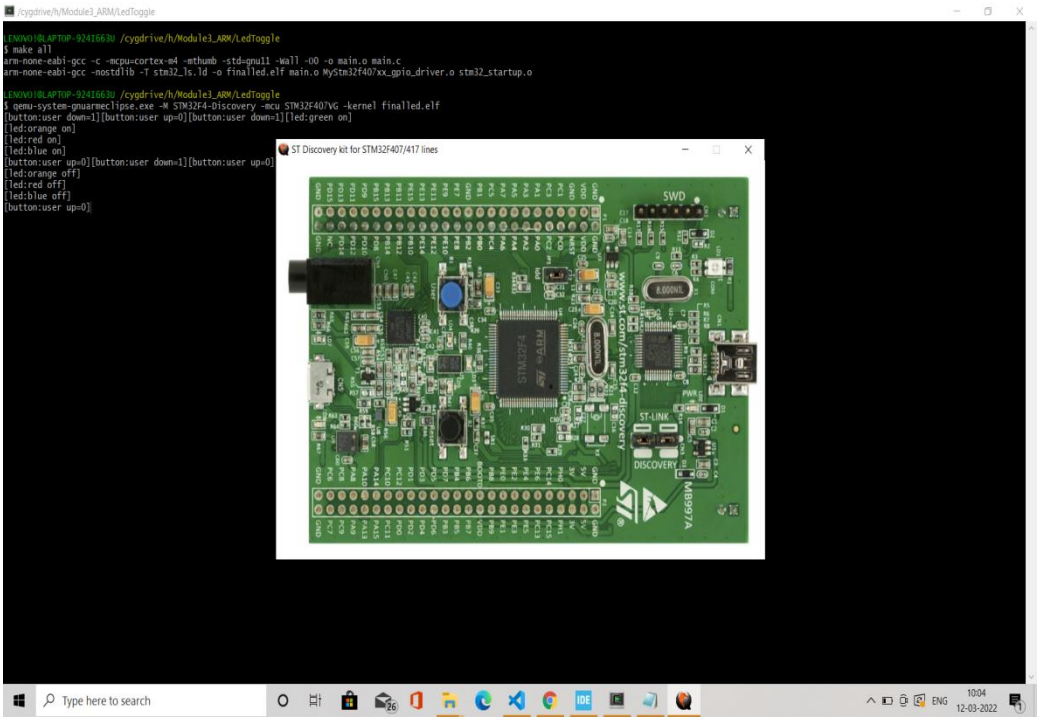

Fig 4.1 LED