

WIPER CONTROL SYSTEM

ABSTRACT

Wiper Control System play a key role during adverse weather conditions by wiping the rain continuously over the windshield area and provides a clear vision to the driver. Wiper is an essential component that used to wipe the raindrops or any water from the windscreen. Most of cars have two wipers on the windscreen, one on the rear window and the other on each headlight. Motors are used to operate these wipers. Depending on the use, these motors are designed to operate in 90 degrees or 150 degrees. To do this project, I used a STM32IDE along with Qemu. We use LEDs to represent a wiper System. speed of wiper system is controlled by frequency. And we use a blue button for ON/OFF to the system.

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INTRODUCTION

Wiper Control System is a project that play a key role during adverse weather conditions by wiping the rain continuously over the windshield area and provides a clear vision to the driver.

This project is implemented in C. C is a platform independent language. Its created project can be used on a standalone machine.

The Objective of this project is to design an electronic circuit that serves to clean the windshield of the car at the front and rear. The wipers are connected to a motor. The motor is operated from a switch inside the car. When the wiper is switched ON, the wiper rotates in standard speed. When the switch is set in speed high position, it rotates faster. When the switch returns back to the original position, the wipers go back to its original position (OFF position) and stop.

REQUIREMENTS

1. Introduction

Wiper Control System is a project that play a key role during adverse weather conditions by wiping the rain continuously over the windshield area and provides a clear vision to the driver.

This project is implemented in C. C is a platform independent language. Its created project can be used on a standalone machine.

2. Objectives

The Objective of this project is to design an electronic circuit that serves to clean the windshield of the car at the front and rear. The wipers are connected to a motor. The motor is operated from a switch inside the car. When the wiper is switched ON, the wiper rotates in standard speed. When the switch is set in speed high position, it rotates faster. When the switch returns back to the original position, the wipers go back to its original position (OFF position) and stop.

3. 4Ws and 1H

WHO

This wiper control system can be used in any vehicles in which wiper system is operating.

WHAT

It is a wiper control system that is used to operate and control the wipers.

WHY

This system can be used when the weather conditions prevent clear view of anything in front of the vehicle when driving.

WHERE

It can be used anywhere like roads in cities, deserts, etc.

HOW

Firstly we press the switch to operate the wiper. Then the switch positions are changes to vary the wiper speeds.

HIGH LEVEL REQUIREMENTS

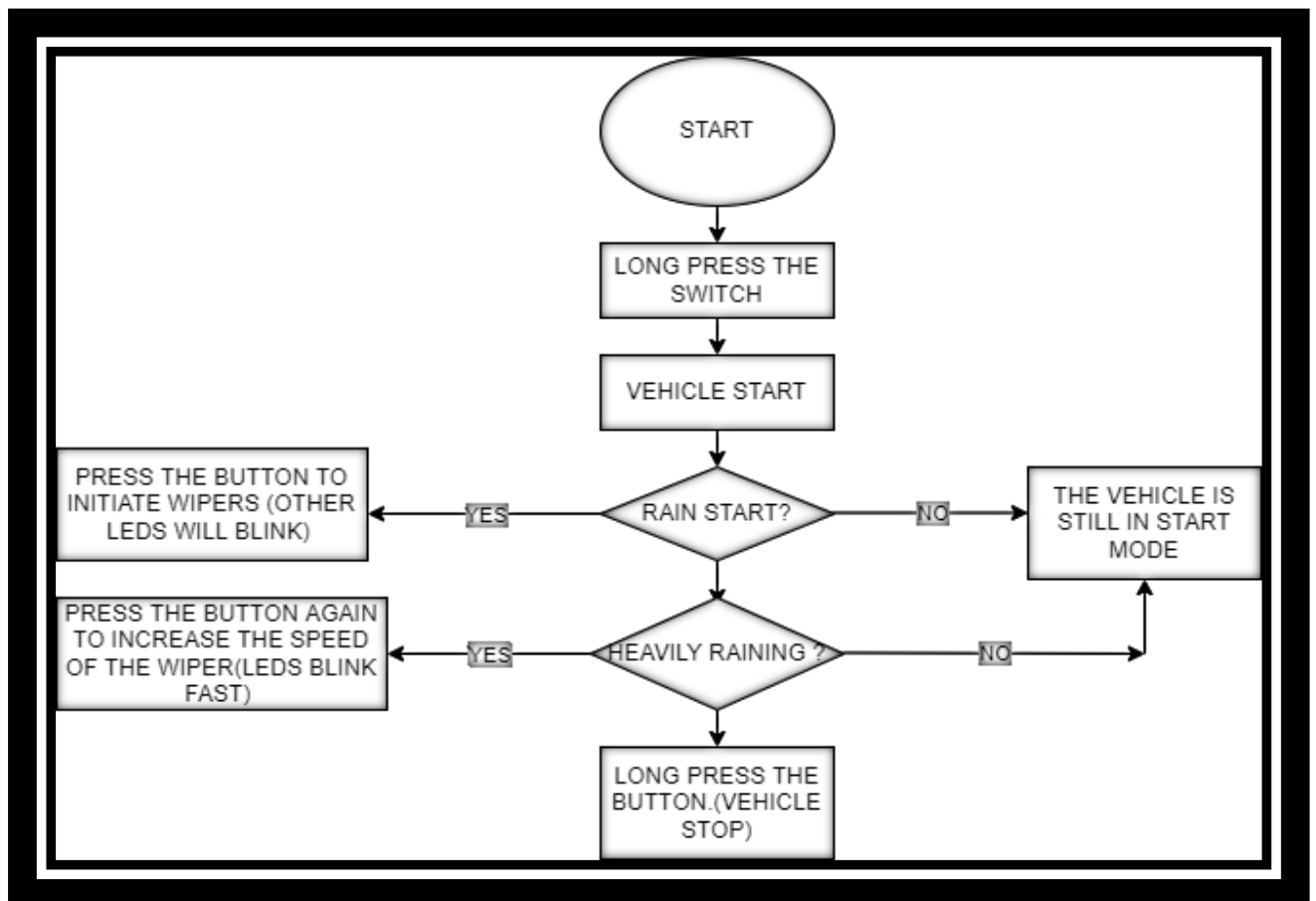
1. First is vehicle Switched ON. #Implementd
2. Wiper switched ON. #Implementd
3. Wiper switched OFF. #Implementd
4. vehicle turned OFF. #Implementd

LOW LEVEL REQUIREMENTS

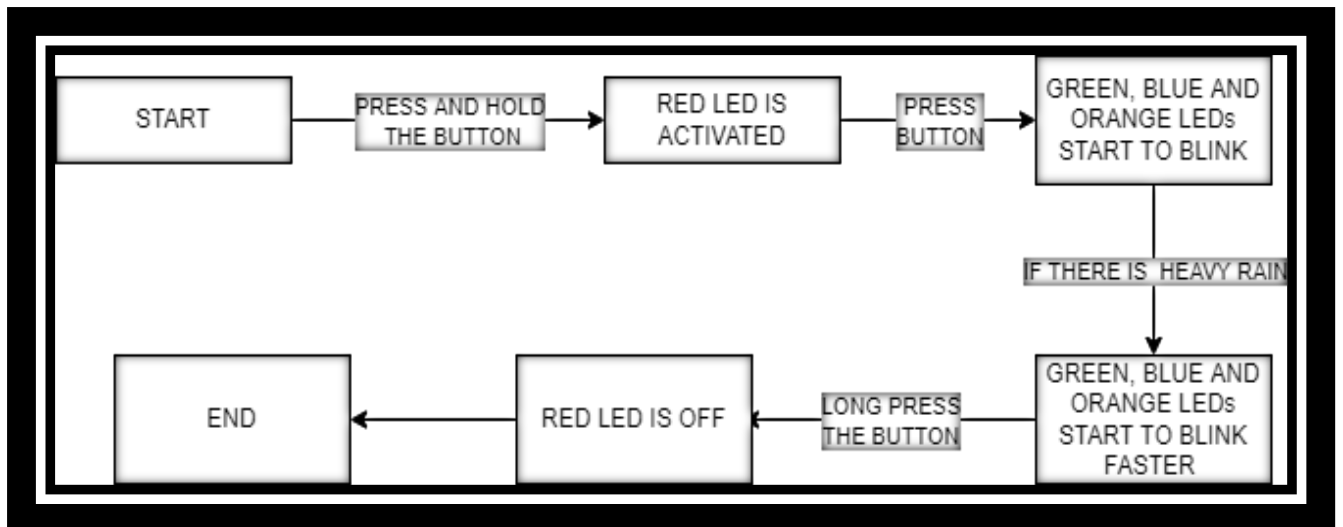
1. Wiper is replaced by LED.
2. We have used 4 LEDs.
3. We have used only 1 switch.
4. We have used 1 timer.

DESIGN

Flowchart



Block Diagram



OUTPUT

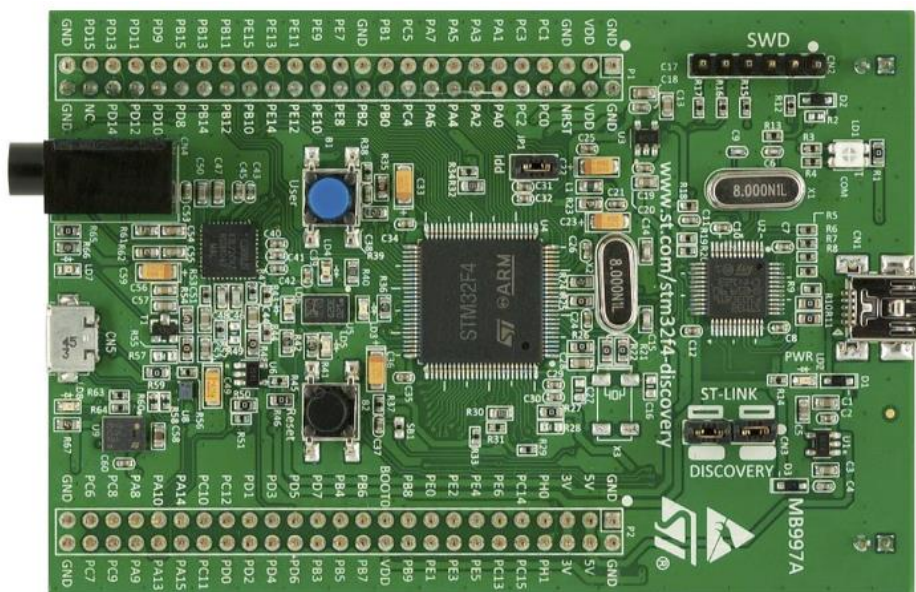


Fig. STM32 Board

TEST CASES

Press the button car will switch ON.

Car switches ON. # Expected Output

Car Switches ON. # Actual Output

After single pressing of the button car wiper get switched ON.

Wipers get activated. # Expected Output

Wipers start operating. # Actual Output

After long press button car switches OFF.

Car switches OFF #Expected Output

Car switches OFF #Actual Output

LOW LEVEL TEST PLAN

Press button for secs.

Red light gets ON. #Expected Output

Red light gets ON. # Actual Output

Press button once.

Green, Orange and blue lights blink. #Expected Output

Green, Orange and blue lights start blink. #Actual Output

When LEDs are blinking press button again.

Except the red led, all LEDs will blink faster. #Expected Output

Except the red led, all LEDs will blink faster. #Actual Output

Press button for secs.

First blinking LED go OFF ,Then red light goes OFF. #Expected Output

First blinking LED go OFF ,Then red light goes OFF. #Actual Output