

TEMPERATURE

FAN

CONTROL

GROUP MEMBER

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OVERVIEW

MODEL DESIGN

- Temp sensor get temperature in 16 bit value
 - Change to int
- Show value in 7 segment
- If value greater than 40 degrees Celsius
 - DC Fan working

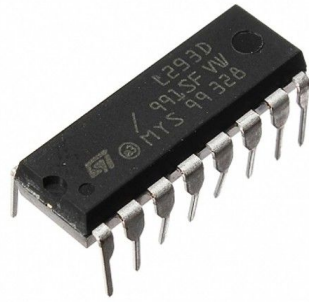
DEVICES USED



STM32L152RB



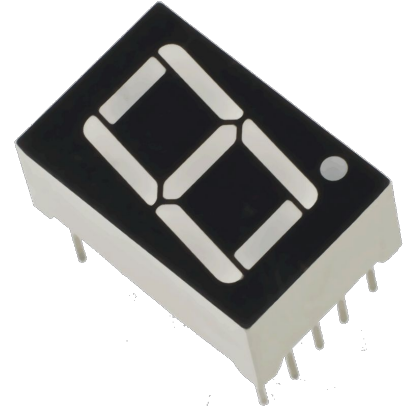
DC Fan 5V



L293D



DALLAS DS18B20



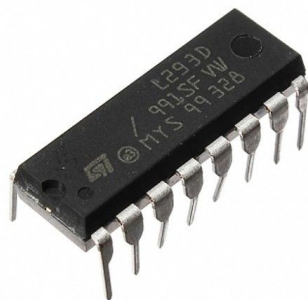
7 Segment

L293D

ST **SGS-THOMSON**
MICROELECTRONICS

L293D
L293DD

PUSH-PULL FOUR CHANNEL DRIVER WITH DIODES



- 600mA OUTPUT CURRENT CAPABILITY PER CHANNEL
- 1.2A PEAK OUTPUT CURRENT (non repetitive) PER CHANNEL
- ENABLE FACILITY
- OVERTEMPERATURE PROTECTION
- LOGICAL "0" INPUT VOLTAGE UP TO 1.5 V (HIGH NOISE IMMUNITY)
- INTERNAL CLAMP DIODES

DESCRIPTION

The Device is a monolithic integrated high voltage, high current four channel driver designed to accept standard DTL or TTL logic levels and drive inductive loads (such as relays solenoids, DC and stepping motors) and switching power transistors.

To simplify use as two bridges each pair of channels is equipped with an enable input. A separate supply input is provided for the logic, allowing operation at a lower voltage and internal clamp diodes are included.

This device is suitable for use in switching applications at frequencies up to 5 kHz.



SO(12+4)



Powerdip (12+2+2)

ORDERING NUMBERS:

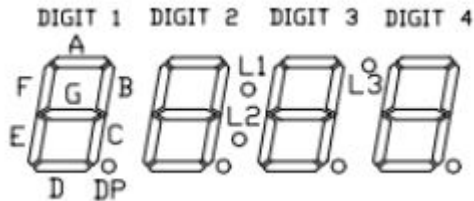
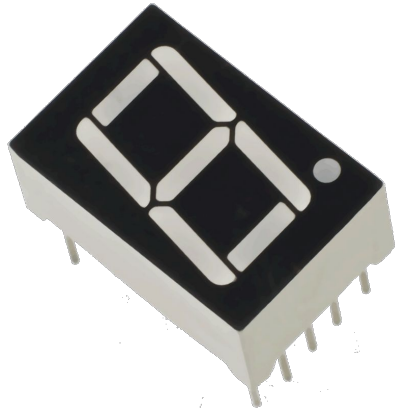
L293DD

L293D

The L293D is assembled in a 16 lead plastic package which has 4 center pins connected together and used for heatsinking

The L293DD is assembled in a 20 lead surface mount which has 8 center pins connected together and used for heatsinking.

7 SEGMENT



LITEON

LITE-ON ELECTRONICS, INC.

Property of Lite-On Only

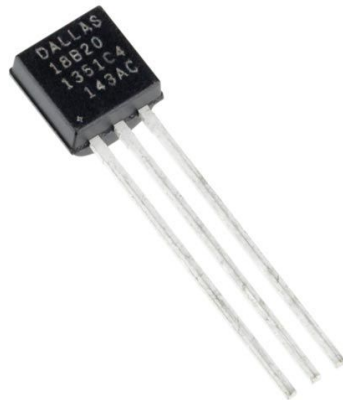
FEATURES

- *0.4inch (10.0mm) DIGIT HEIGHT.
- *CONTINUOUS UNIFORM SEGMENTS.
- *LOW POWER REQUIREMENT.
- *EXCELLENT CHARACTERS APPEARANCE.
- *HIGH BRIGHTNESS & HIGH CONTRAST.
- *WIDE VIEWING ANGLE.
- *SOLID STATE RELIABILITY.
- *CATEGORIZED FOR LUMINOUS INTENSITY.

DESCRIPTION

The LTC-4727JS inch (10.0 mm) digit height quadruple digit seven-segment display. This device utilizes AlInGaP yellow LED chips, which are made from AlInGaP on a non-transparent GaAs substrate, and has a gray face and white segments.

DALLAS DS18B20



www.dalsemi.com

PRELIMINARY

DS18S20 High Precision 1-Wire® Digital Thermometer

FEATURES

- Unique 1-Wire interface requires only one port pin for communication
- Multidrop capability simplifies distributed temperature sensing applications
- Requires no external components
- Can be powered from data line. Power supply range is 3.0V to 5.5V
- Zero standby power required
- Measures temperatures from -55°C to $+125^{\circ}\text{C}$. Fahrenheit equivalent is -67°F to $+257^{\circ}\text{F}$
- $\pm 0.5^{\circ}\text{C}$ accuracy from -10°C to $+85^{\circ}\text{C}$
- Temperature is read as a 9-bit digital value
- Converts temperature to digital word in 750 ms (max.)
- User-definable, nonvolatile temperature alarm settings
- Alarm search command identifies and addresses devices whose temperature is outside of programmed limits (temperature alarm condition)
- Functionally compatible with DS18B20 1-Wire digital thermometer
- Applications include thermostatic controls, industrial systems, consumer products, thermometers, or any thermally sensitive system

PIN ASSIGNMENT

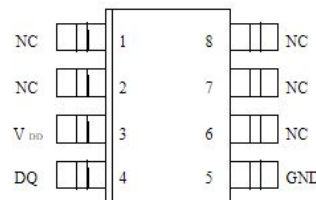


GND
DQ
VDD

BOTTOM VIEW



DS18S20 To-92
Package



DS18S20Z
8-Pin SOIC (150 mil)

PIN DESCRIPTION

- GND - Ground
- DQ - Data In/Out
- VDD - Power Supply Voltage
- NC - No Connect

MODEL DESIGN

System information

- MCU : STM32L152RB
 - Sensor : DALLAS DS18B20
 - 7 segment : 2-digit
 - Software : Keil/Language:C
-

MODEL DESIGN

Function

- Measure temperature
 - Temperature sensor
- Show value
 - 7 segment
- Motor
 - DC fan 5v

Behavior

- Show value
 - Range : 2 digits
 - Unit : Celsius
- Measure temperature
 - operating length
 - -55 - 125 degrees Celsius
- Indicate status
 - ≥ 30 degrees Celsius

MODEL DESIGN

Port/pin	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
A																
B																
C																
D																
H																



7 segment



L293D

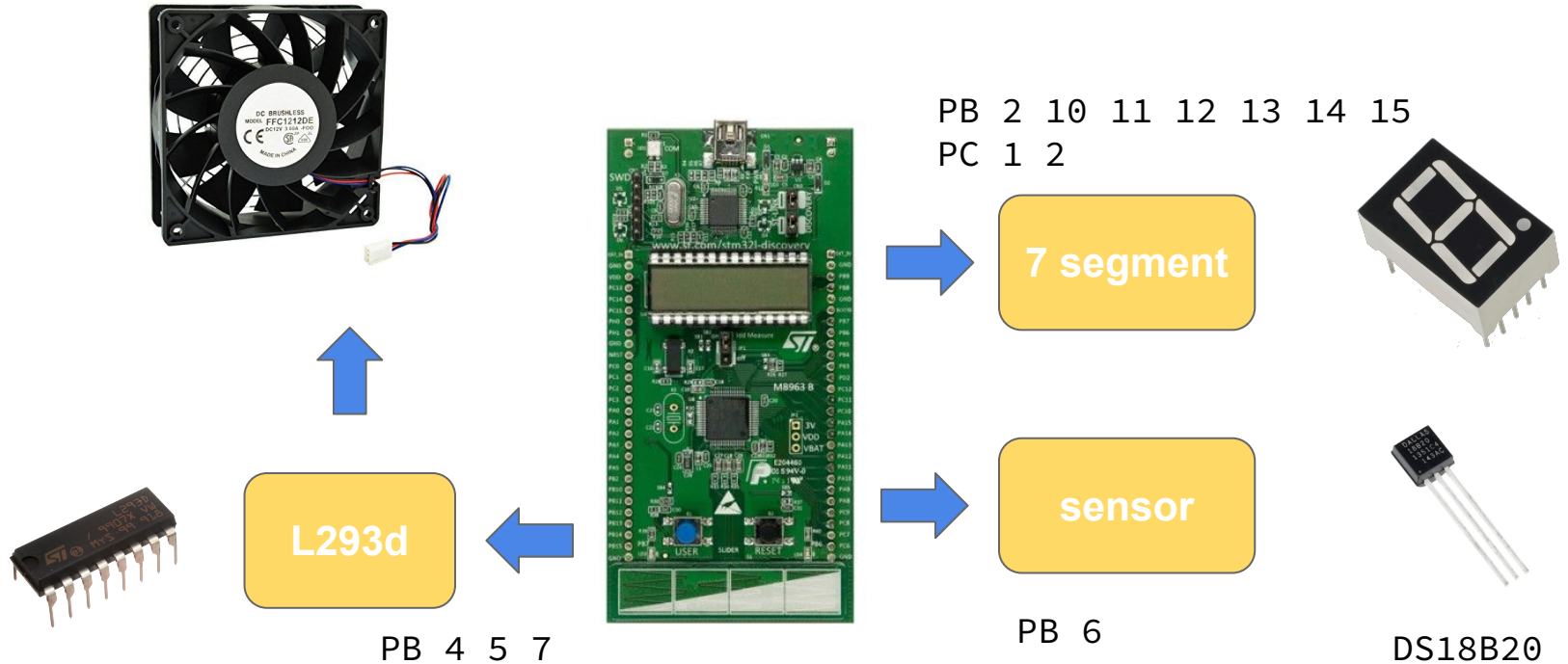


DALLAS DS18B20

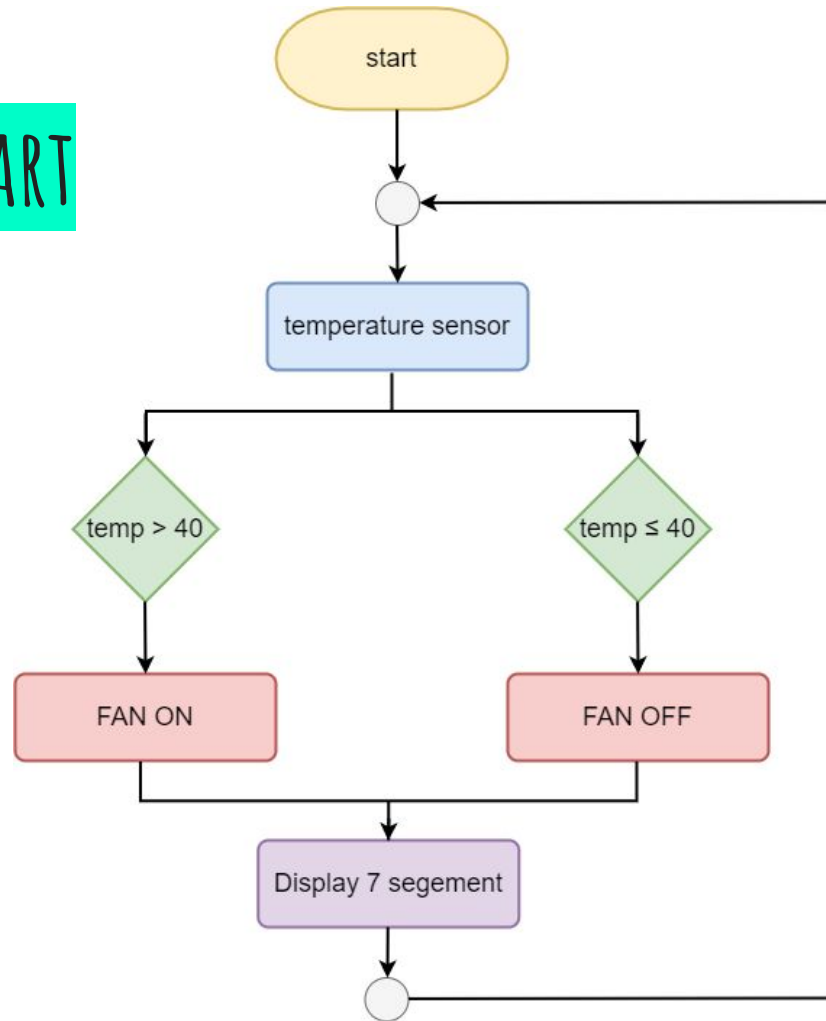


Not use

MODEL DESIGN



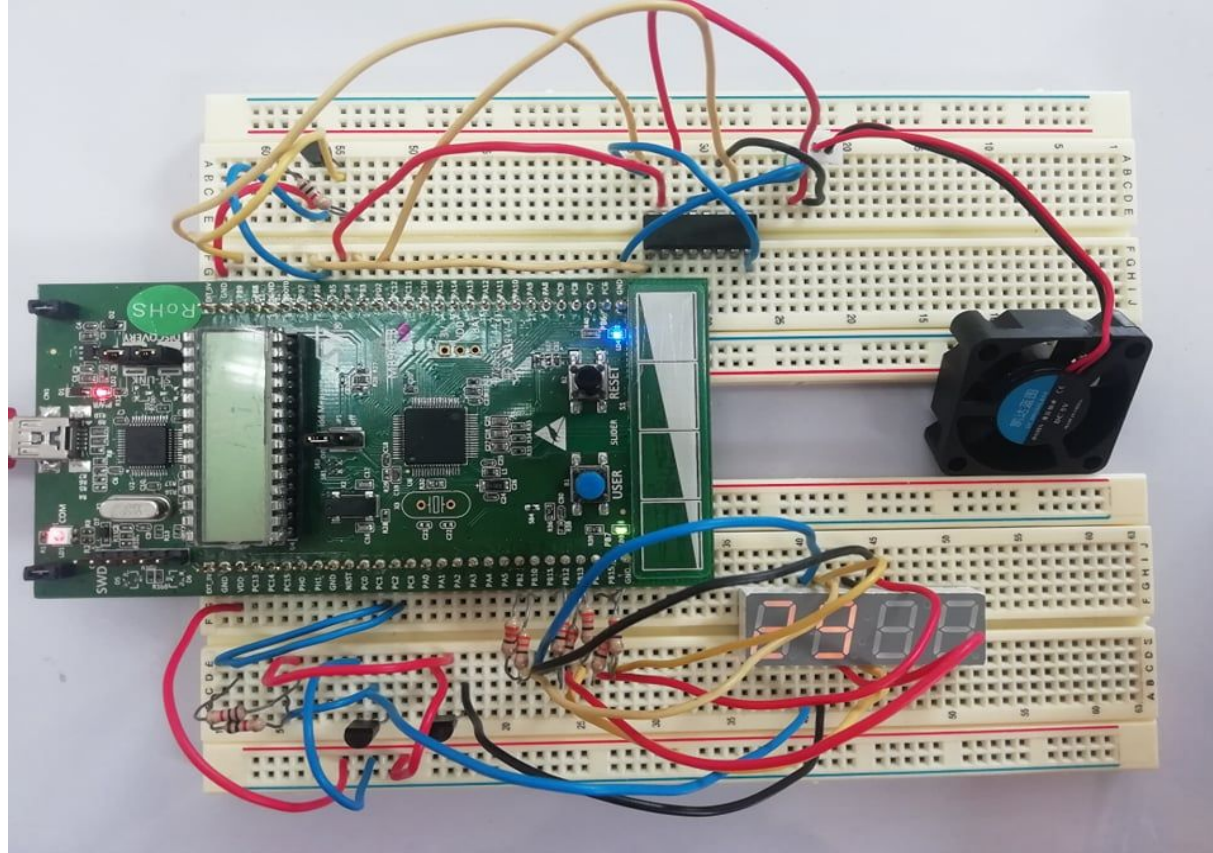
SYSTEM FLOWCHART



GANTCHART

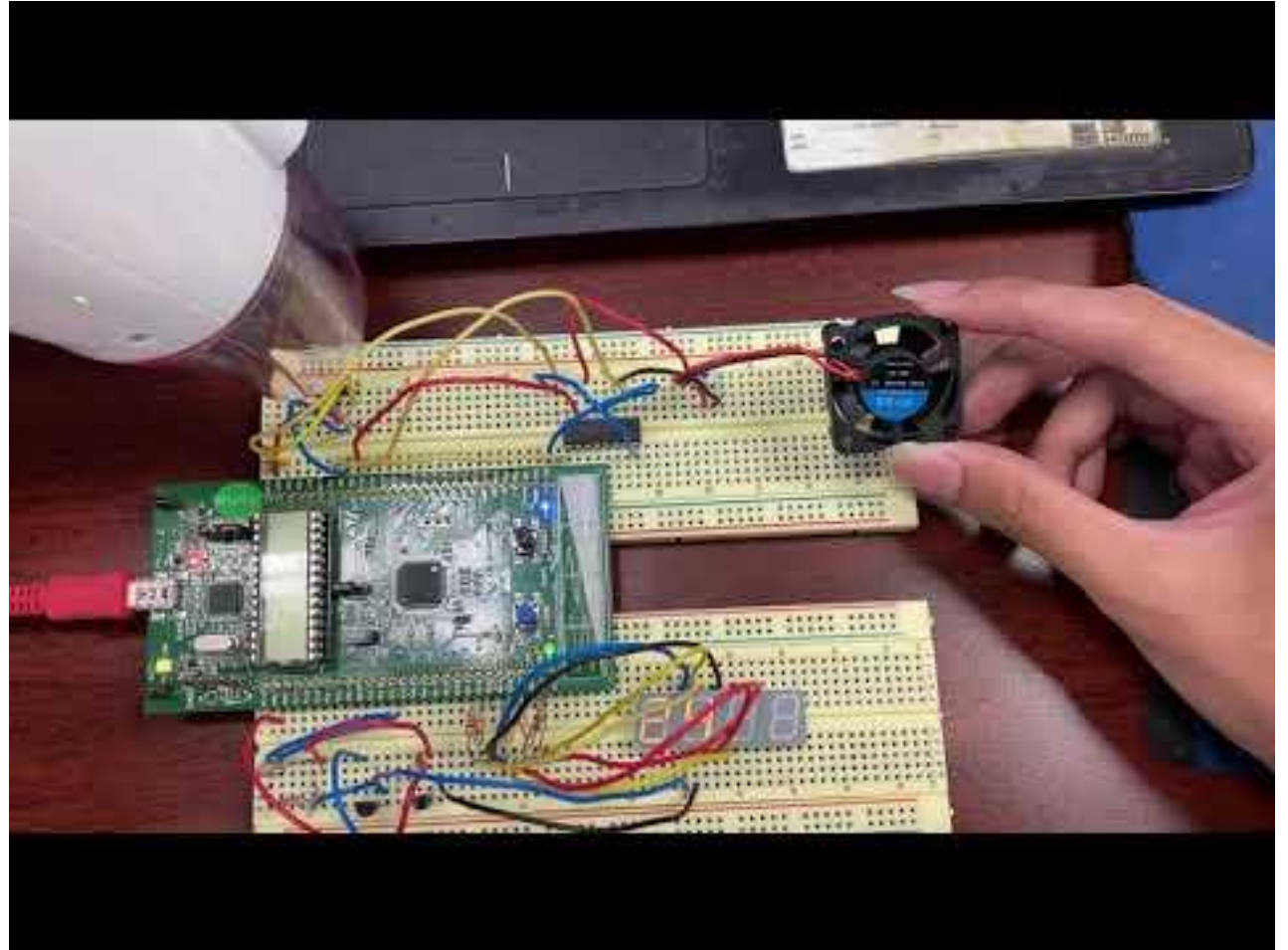
Project Plan								
Task	Responsibility	Dec	Jan				Feb	
		4	1	2	3	4	1	2
Planning & discuss	All member							
Specification	All member							
Architectural design	Tanarat							
Detailed Design	Tanarat+Patsawut							
Coding	All member							
Unit Testing	Kanitin							
Integration Testing	Kanitin							
System Testing	Kanitin							
Acceptance testing	All member							

	Plan
	Done
	Late



Circuit

EXAMPLE VDO



PROBLEM AND SOLUTION

Hardware Component lists

Component list	Qty.	มีแล้ว	รอเบิก	รอซื้อ	แหล่งซื้อ	ราคา/ชิ้น	ราคารวม
STM32L152RB Board	1	/					
L293D	1	/					
DS18B20	1	/					
7 Segment	1	/					
DC Fan 5V	1	/			shopee	43	43
Pin Header for DC Fan	1	/			shopee	31	31
Wire	-						
							74

THANK YOU