L&T Technology Services

Document History

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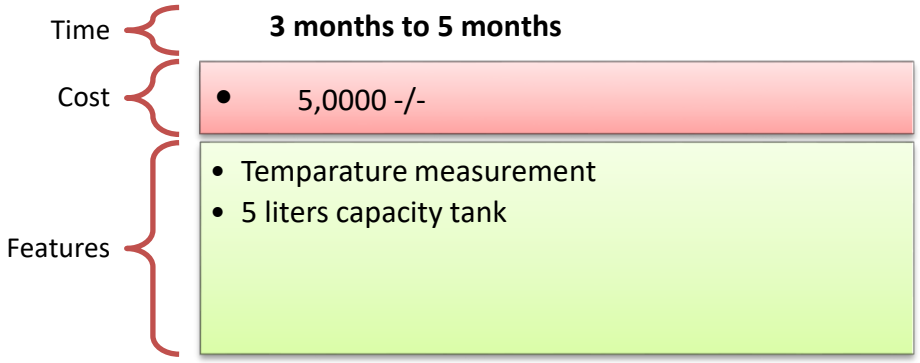
Case Study of RTCs With Temperature Display

1.Requirements:

i. Empathize Research:

Real Time Clock is a digital clock which display real time. The clock provides seconds, minutes, hours, day, date, month, and year information. The end of the month date is automatically adjusted for months with fewer than 31 days, including corrections for leap year. The clock operates in either the 24-hour or 12-hour format with AM/PM indicator. It has a built-in power-sense circuit that detects power failures and automatically switches to the backup supply. Timekeeping operation continues while the part operates from the backup supply.

Analysis:



ii. High-Level Requirement:

ID	Description
HR01	Temperature display
HR02	Time display

iii. Low-Level Requirement:

ID	Description	Datasheet
LR01	RTC module	
LR02	OLed display	
LR03	Microcontroller	
LR04	Temperature sensor	

iv. SWOT Analysis:

Strengths :

1. **Time and Temparature display even when power is off.**
2. **effective time keeping**
3. **cost efficient**
4. **low power**

weaknesses :

1. space occupied

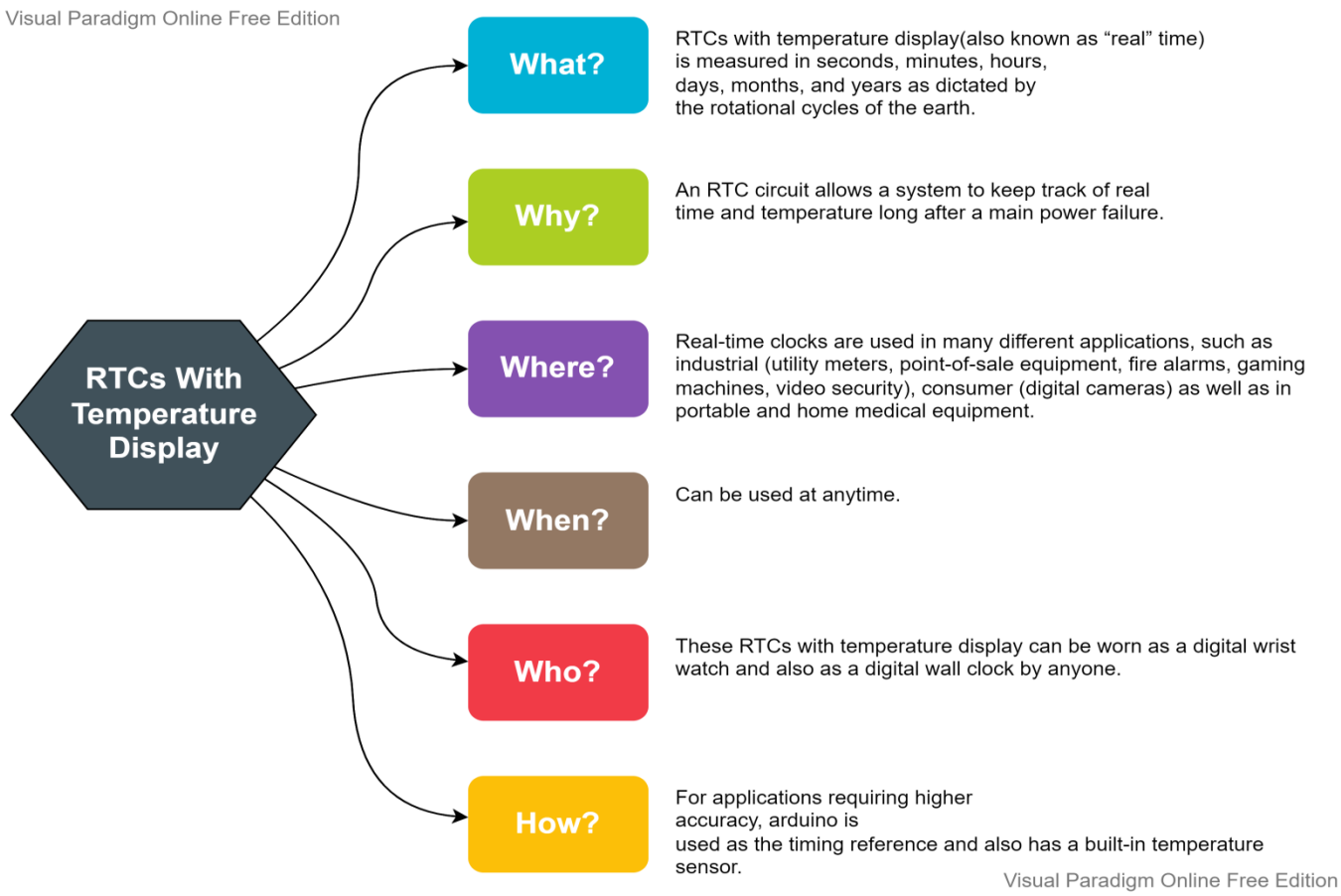
Opportunities :

1. Airports
2. Shopping malls
3. commercial purpose
4. Hospitals

Threats:

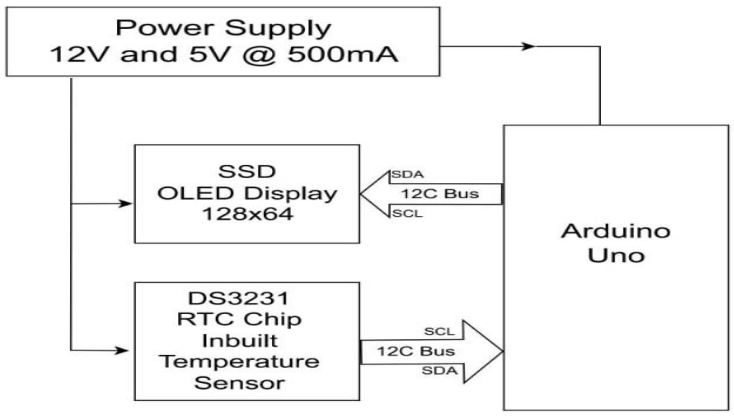
1. Minimum range of a Requirement
2. Slow stock clearance sale

v. 5W 1H:



1. Design:

i. Block Diagrams:



2. Summary:

Real time clock with temperature display proposed in this case study helps to maintain real time clock and temperature necessary for various real time running systems even when there is no external power. Real time clock is commonly used in our computers, houses, offices and electronics device for keeping them update with real time. It is not only a real time clock but also a temperature sensing circuit. Temperature sensors are used to detect the room or body temperature. It can be developed to control other real time based operating systems such as regular warming the rice cooker, filling the water tank, checking the mail box and so on.

3. REFERCES

[1] Floyd, (2007), T. L. Electronic Devices, 7th ed, New Jersey: Prentice-Hall International Inc.

[2] Goransson.A, (2013), AndroidTM Open Accessory ProgrammingTM+ ArduinoTM Project for the Evil Genius Arduino, John Wiley & Son inc.