DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

Embedded System

Experiment-12

Submitted by

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Experiment 12

Aim:

To write an ARM Assembly Language to find the number of times a character is repeated in a string.

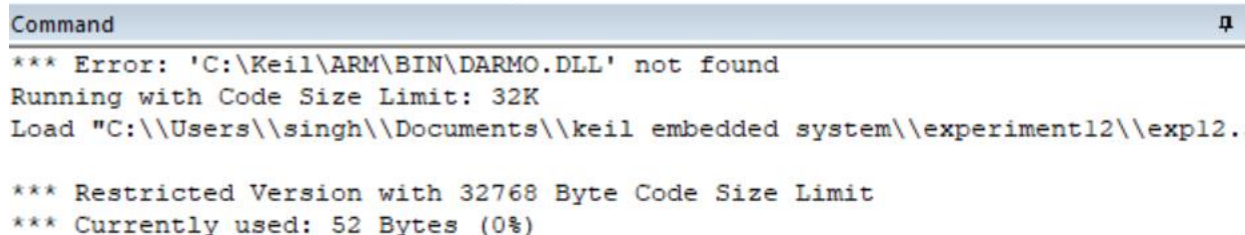**Tool Used:**

Keil uVision4

Theory:

DCD stands for Define Constant Double word and DCB stands for Define Constant Byte. The value of the string is loaded using DCB and DCD values and compared until the value is 0.

Code:

```
      AREA PROGRAM, CODE, READONLY
      ENTRY
MAIN
         LDR R0, VALUE1
         MOV R1, #'D'
LOOP2    LDRB R3,[R0],#1
         CMP R3,R1
         BNE LOOP2
         ADDS R3,R3,#0
         BEQ LOOP1
         ADD R7,R7,#1
         B LOOP2
LOOP1    SWI &11

      AREA PROGRAM, DATA, READONLY
VALUE1 DCD STRING
STRING DCB "EMBEDDED"
      END
```

Output:

Register	Value
Current	
R0	0x00000035
R1	0x00000044
R2	0x00000000
R3	0x00000000
R4	0x00000000
R5	0x00000000
R6	0x00000000
R7	0x00000003
R8	0x00000000
R9	0x00000000
R10	0x00000000
R11	0x00000000
R12	0x00000000
R13 (SP)	0x00000000
R14 (LR)	0x00000000
R15 (PC)	0x0000000C
CPSR	0x000000D3
SPSR	0x00000000
User/System	
Fast Interrupt	
Interrupt	
Supervisor	

The word Embedded has 3 D in it which is displayed in R7.

Result:

The experiment to find the number of times a character is repeated in a string has been performed and verified to be correct.