

# **DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING**



**THAPAR INSTITUTE**  
OF ENGINEERING & TECHNOLOGY  
(Deemed to be University)

## **Embedded System**

### **Experiment-11**

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## Experiment 11

### Aim:

To write an ARM Assembly Language to find the length of a string.

### Tool Used:

Keil uVision4

### Theory:

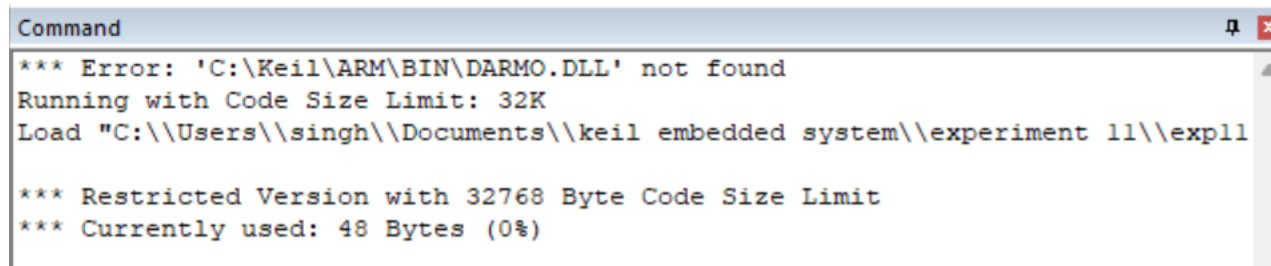
DCD stands for Define Constant Double word and DCB stands for Define Constant Byte. The value of the string is loaded using DCB and DCD values and compared until the value is 0.

### Code:

```
        AREA PROGRAM, CODE, READONLY
        ENTRY
MAIN
        LDR R0, VALUE1
LOOP2   LDRB R3,[R0],#1
        ADDS R3,R3,#0
        BEQ LOOP1
        ADD R7,R7,#1
        B LOOP2
LOOP1   ADD R0,R0,#0

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

### Output:



```
Command
*** Error: 'C:\Keil\ARM\BIN\DARMO.DLL' not found
Running with Code Size Limit: 32K
Load "C:\\Users\\singh\\Documents\\keil embedded system\\experiment 11\\expl1

*** Restricted Version with 32768 Byte Code Size Limit
*** Currently used: 48 Bytes (0%)
```

Registers	
Register	Value
Current	
R0	0x00000000
R1	0x00000000
R2	0x00000000
R3	0x00000000
R4	0x00000000
R5	0xFFFFF300
R6	0x00000000
R7	0x0000000F
R8	0x00000000
R9	0x00000000
R10	0x00000000
R11	0x00000000
R12	0x00000000
R13 (SP)	0x00000000
R14 (LR)	0x00000000
R15 (PC)	0x00000030
CPSR	0x400000D3
SPSR	0x00000000
+	User/System
+	Fast Interrupt
+	Interrupt
+	Supervisor

The word Embedded System is having F characters which are displayed in R7.

### Result:

The experiments to find the length of a string have been performed and verified to be correct