WWW.MWFTR.COM
EECE416 Microcomputer
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Basic Stamp 2

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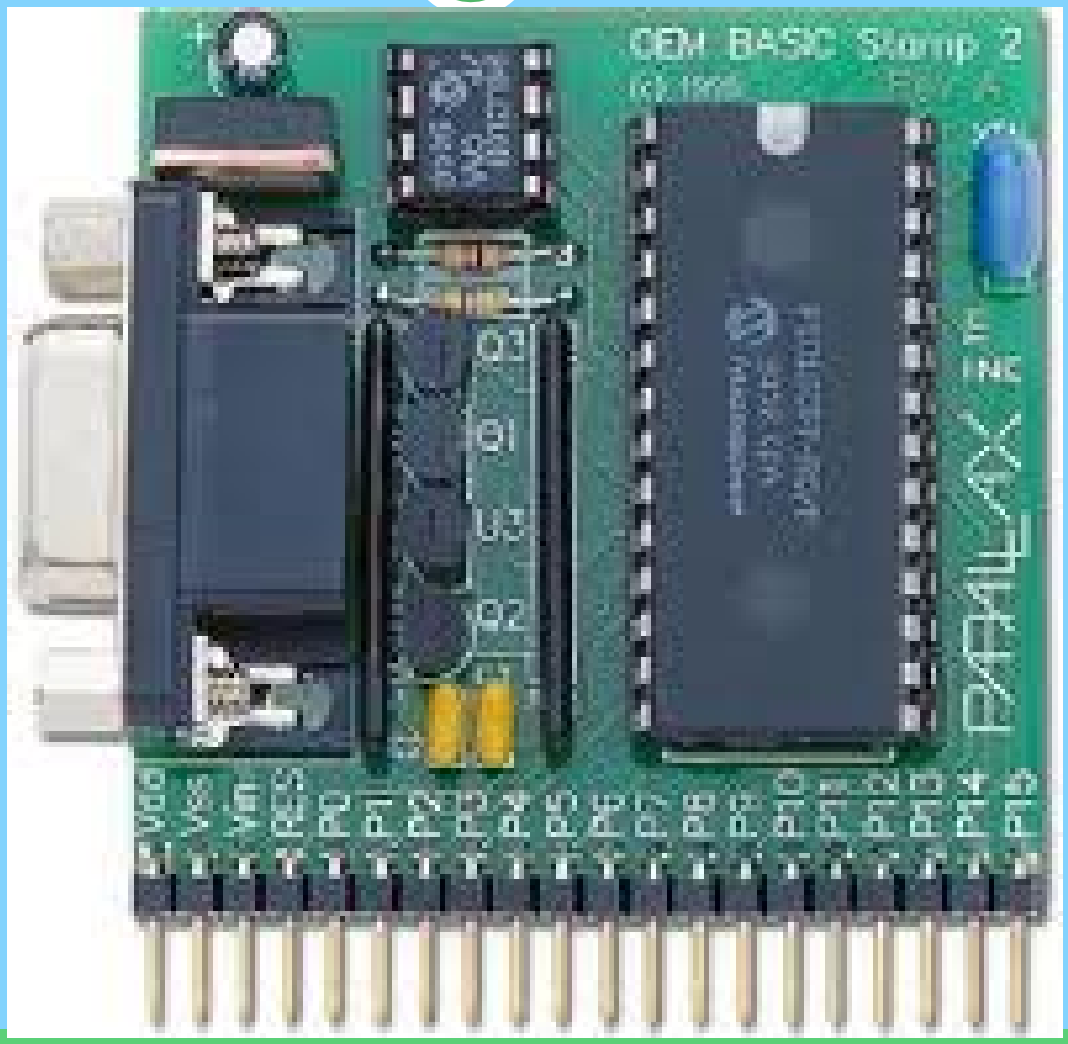
Background on the Basic Stamp 2

- BS2 is a microcontroller with its own unique internal system
- It contains:
  - Central processing unit, with ROM encoded with the BASIC interpreter (used for code)
  - Memory
  - Clock
  - 16 I/O pins


OEM BASIC Stamp 2
BASIC
INC

Working with the PBASIC Code

- Of the 32 bytes of memory, 26 bytes are available
  - This means there is a lot of room for designing in-depth programs
- The code can be written on any computer using the Editor software, then subsequently loaded to the board via a VGA-to-USB cord

Code

```
' {$STAMP BS2}
' {$PBASIC 2.5}'

First_roll  VAR Byte  ' first DIE
Second_roll  VAR Byte  ' second DIE
DICE  VAR Byte  ' total

R   VAR Byte  ' random number in range 0-65,535

TIMES   VAR Byte  ' flash counter

 OUT     CON 1  ' define the word OUT to be the same as 1
 LED  CON 0  ' LED is on pin 0
 LED1 CON 10
 LED2 CON 11
 LED3 CON 12
 LED4 CON 13
 LED5 CON 14
 LED6 CON 15

 DELAY_TIME CON 500

 DIR0=OUT
```

Code Again

```
TOP:
 LOW LED    ' be sure the LED is off
 RANDOM R  ' R is now 0 - 65,535
 First_roll = ((R //6)+1)   ' roll first die
 DEBUG   SDEC ? First_roll
 IF (First_roll =1) THEN
     HIGH LED1
     LOW LED2
     LOW LED3
     LOW LED4
     LOW LED5
     LOW LED6
ELSE

.....

HIGH LED6
 ENDIF

```

More Code (Last One :D)

```
 GOSUB WINK

DONE:
 GOTO TOP

WINK:  ' flashes LED DICE times
 FOR TIMES=1 TO DICE
      GOSUB FLASH
 NEXT
 PAUSE 5000   ' I added this in order to let it stay off for longer( not sure if this will work
 RETURN



FLASH:  ' winks LED on and off one time
 HIGH LED    ' turn on the LED
 PAUSE DELAY_TIME

 LOW LED    ' turn off the LED
 PAUSE DELAY_TIME

 RETURN
```

Throwing Dice Generator

- This code generates 2 random dice and shows the user their values based on a series of LED flashes
- The program then adds the two values and provides the user with the dice total.
- The values display in both decimal and hex

Now to the Presentation

Enjoy!