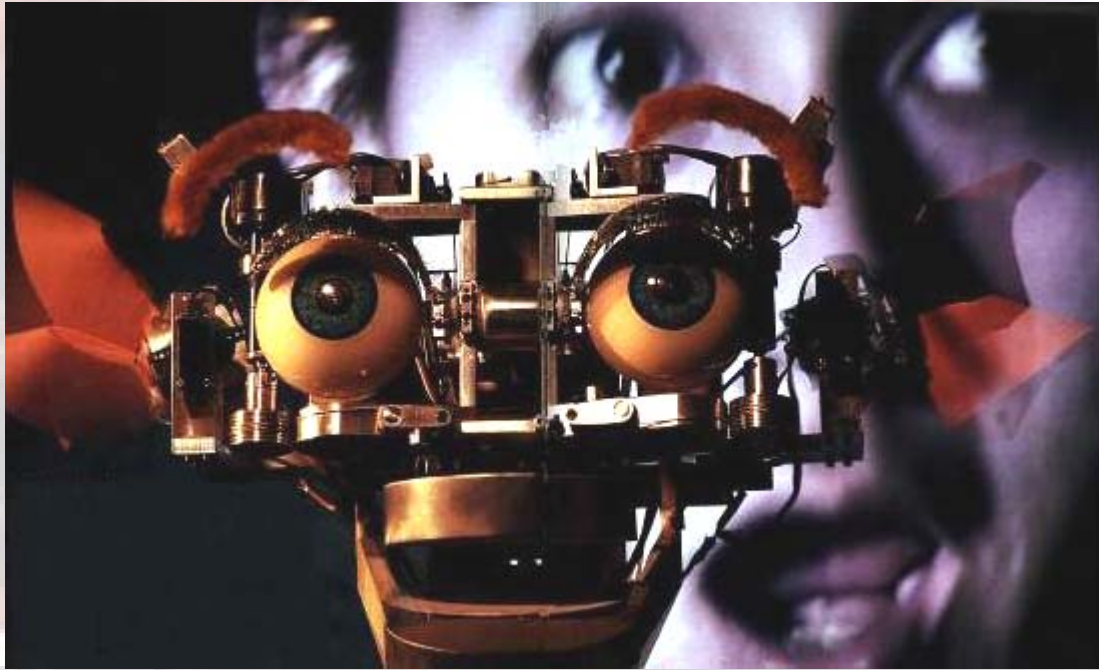


當BASIC Stamp 遇上互動式遊戲設計



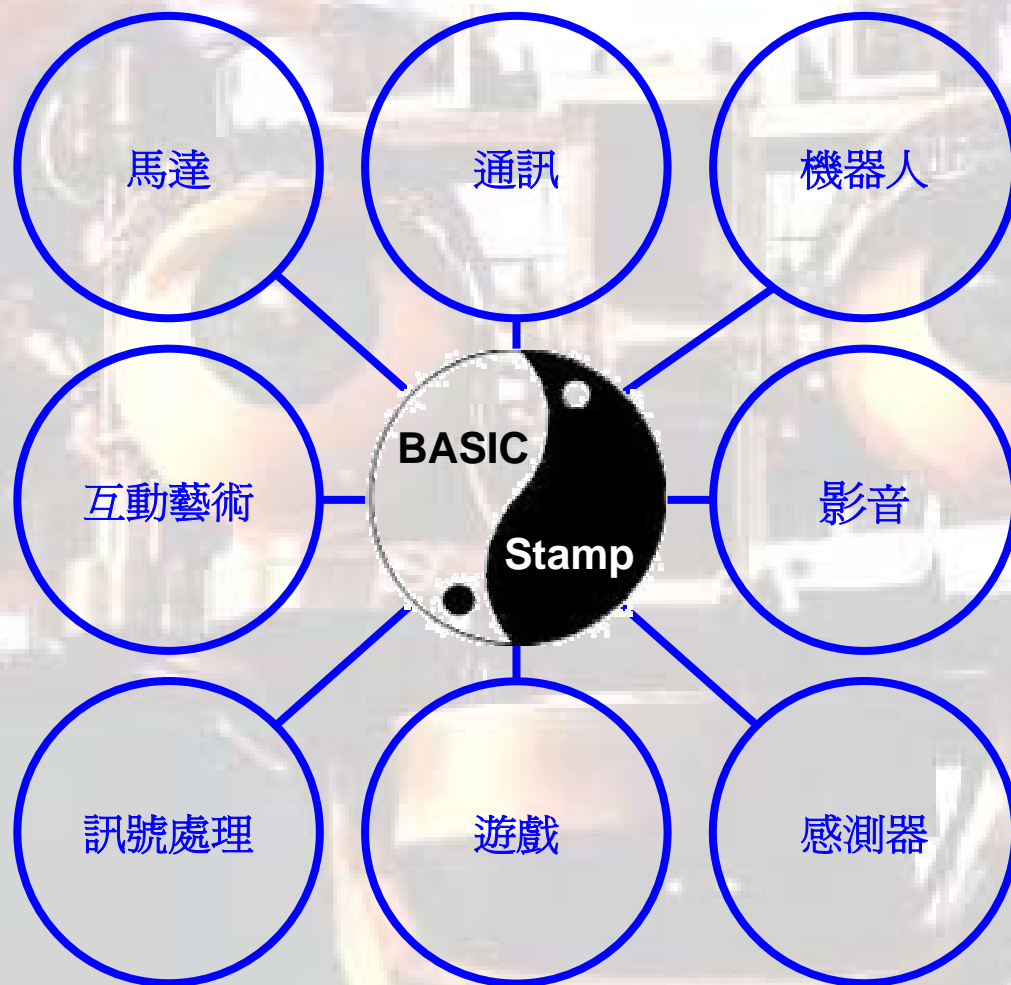
翹機器人專賣店
www.playrobot.com
紀恩凱

BASIC Stamp 介紹

- 什麼是“BASIC Stamp”？
- BASIC Stamp 的基本組成.
- BASIC Stamp 的種類.
- BASIC Stamp 開發環境 .
- BASIC Stamp 語法簡介.
- BASIC Stamp 範例
 - LED、超音波.
- 感測器的種類與應用
- BASIC Stamp 學習資源 .
- BASIC Stamp 的優點.
- 互動感測器應用展示.



什麼是“BASIC Stamp”？



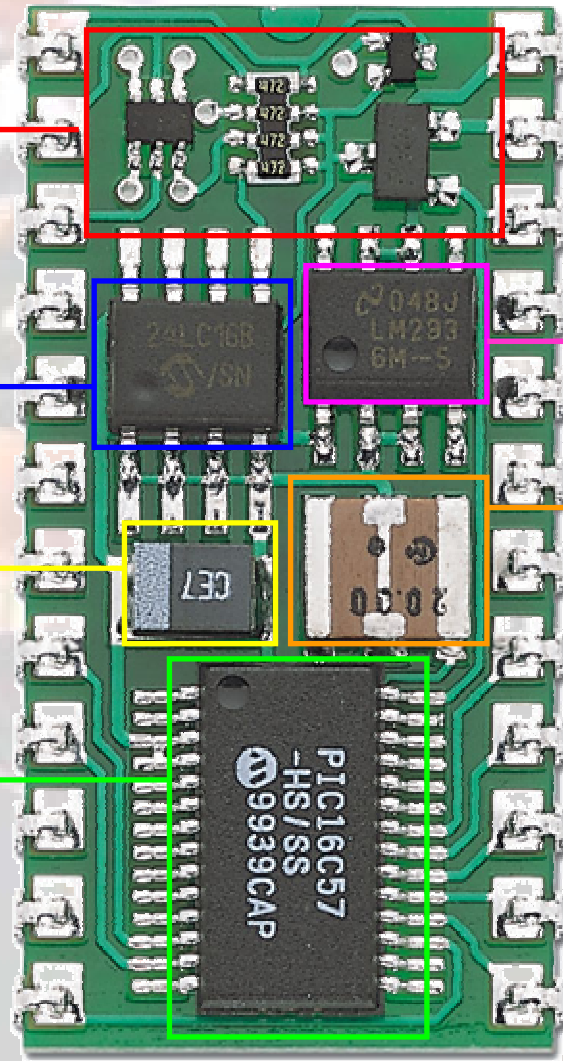
BASIC Stamp 基本組成

串列傳輸介面
與電腦溝通的橋樑

EEPROM
儲存PBASIC程式.

電容器
穩壓,過濾電子雜訊

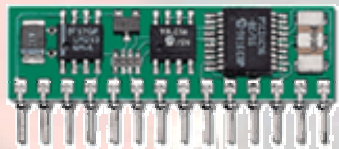
微控制器
執行PBASIC 程式



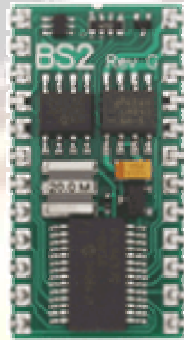
5V 穩壓IC
提供5V的使用電源

震盪器
信號的驅動

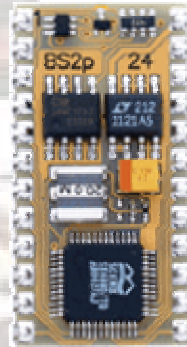
BASIC Stamp 的種類



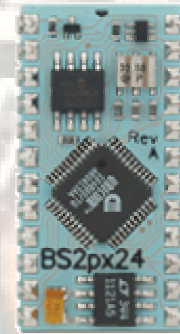
BS1



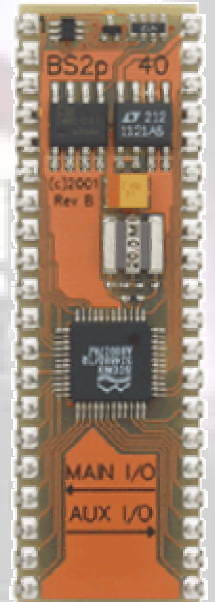
BS2



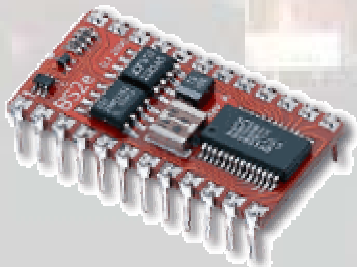
BS2p



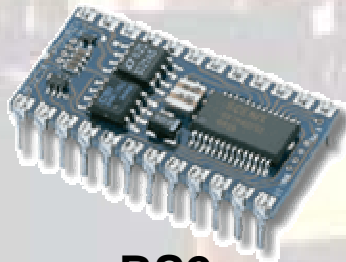
BS2px24



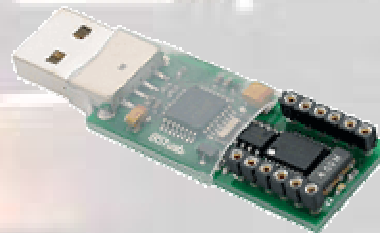
BS2p40



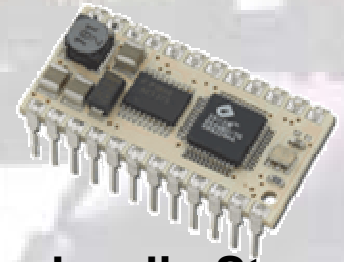
BS2e



BS2sx

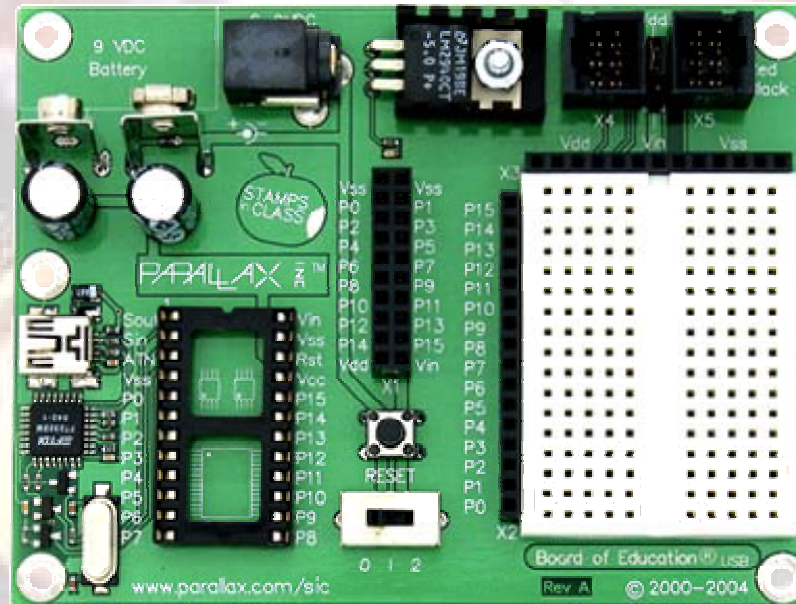


BS1USB

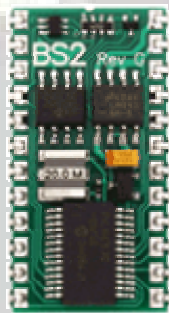


Javelin Stamp

BASIC Stamp 硬體環境



BOE 實驗板



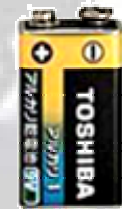
BASIC Stamp



USB Cable



變壓器



9V電池

BASIC Stamp 軟體環境



BASIC Stamp 使用者介面



BASIC Stamp 語法簡介

{ PBASIC }

高階語言指令結構

迴路:

DO ... LOOP

分支:

SELECT ... CASE
BRANCH

判斷:

IF ... THEN

跳躍:

GOTO

功能指令完整

聲音:

FREQOUT

通訊:

SERIN
SEROUT

亂數:

RANDOM

除錯:

DEBUG

BASIC Stamp 範例



- **BASIC Stamp LED 閃爍程式設計**



- **BASIC Stamp 與超音波感測器的創意應用**

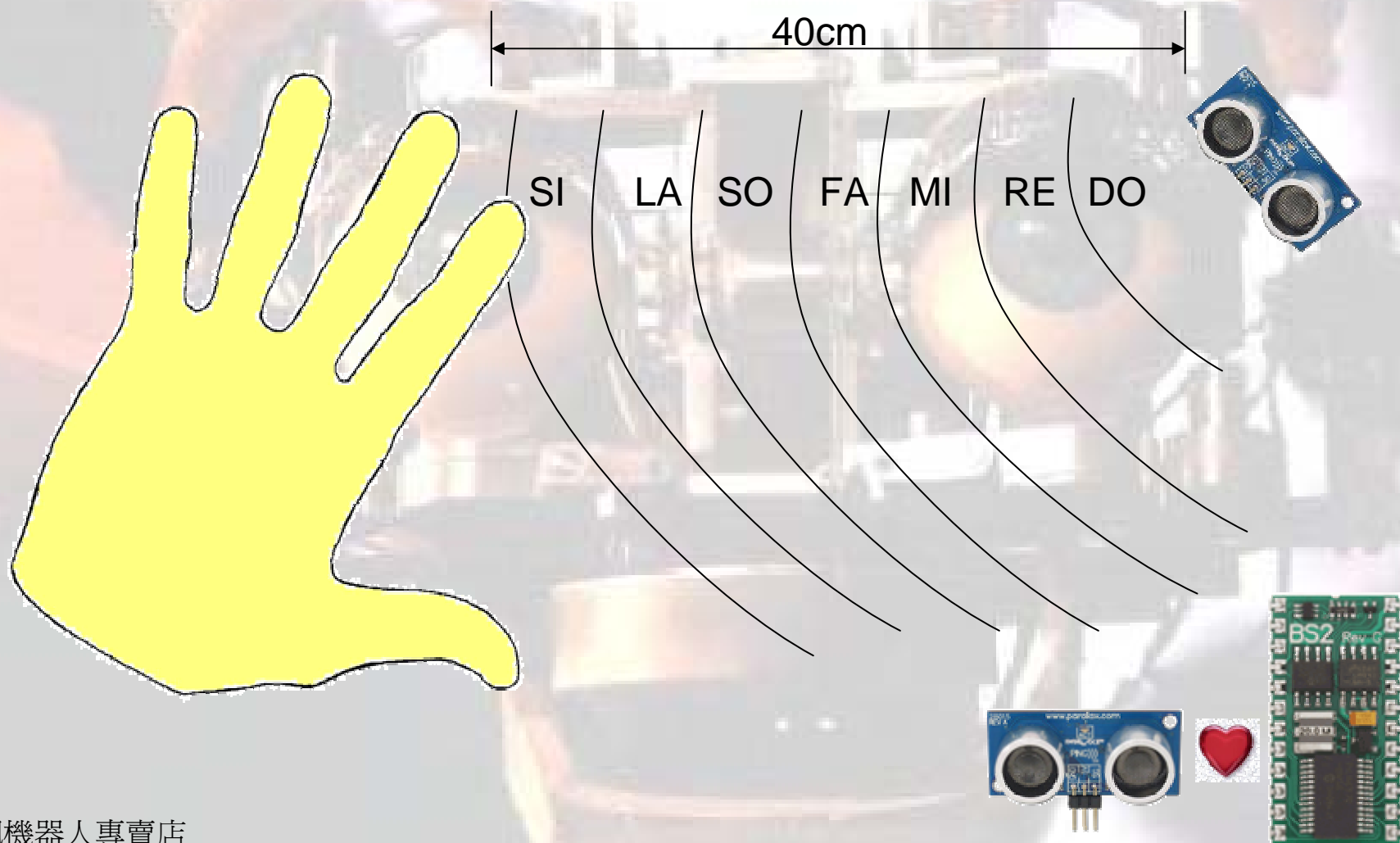
BASIC Stamp LED 閃爍程式

{ \$STAMP BS2 } '使用**BS2**晶片
{ \$PBASIC 2.5 } '使用第**2.5**版 **PBASIC** 語法
DO
HIGH 12 '設定第**12**隻接腳為 **High "1"**
PAUSE 250 '延遲 **1/4** 秒
LOW 12 '設定第**12**隻接腳為 **Low "0"**
PAUSE 250 '延遲 **1/4** 秒
LOOP '無窮迴路



BASIC Stamp 與超音波感測器的創意應用

超音波DO RE MI)))



超音波DO RE MI ~ PBASIC 程式

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

```
toneSelect VAR Byte  
duration VAR Word  
time VAR Word
```

```
DO_ VAR Word  
RE_ VAR Word  
MI_ VAR Word  
FA_ VAR Word  
SO_ VAR Word  
LA_ VAR Word  
SI_ VAR Word  
DOO_ VAR Word
```

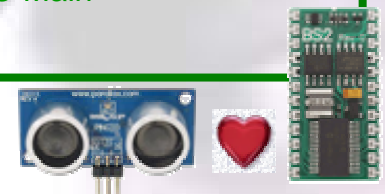
```
duration = 400
```

```
DO_ = 1047  
RE_ = 1175  
MI_ = 1319  
FA_ = 1396  
SO_ = 1568  
LA_ = 1760  
SI_ = 1976  
DOO_ = 2093
```

```
Main:
```

```
PULSOUT 1, 5  
PULSIN 1, 1, time  
time = time **2251  
IF (time <10) THEN  
toneSelect=0  
ELSEIF (time>=10)&(time <15) THEN  
toneSelect=1  
ELSEIF (time>=15)&(time <20) THEN  
toneSelect=2  
ELSEIF (time>=20)&(time <25) THEN  
toneSelect=3  
ELSEIF (time>=25)&(time <30) THEN  
toneSelect=4  
ELSEIF (time>=30)&(time <35) THEN  
toneSelect=5  
ELSEIF (time>=35)&(time <40) THEN  
toneSelect=6  
ELSEIF (time>=40)&(time <45) THEN  
toneSelect=7  
ELSE  
toneSelect=8  
ENDIF  
  
BRANCH toneSelect, [exe_DO, exe_RE, exe_MI,  
exe_FA, exe_SO, exe_LA, exe_SI, exe_DOO]  
GOTO Main
```

```
exe_DO:  
FREQOUT 0,duration,DO_  
GOTO Main  
exe_RE:  
FREQOUT 0,duration,RE_  
GOTO Main  
exe_MI:  
FREQOUT 0,duration,MI_  
GOTO Main  
exe_FA:  
FREQOUT 0,duration,FA_  
GOTO Main  
exe_SO:  
FREQOUT 0,duration,SO_  
GOTO Main  
exe_LA:  
FREQOUT 0,duration,LA_  
GOTO Main  
exe_SI:  
FREQOUT 0,duration,SI_  
GOTO Main  
exe_DOO:  
FREQOUT 0,duration,DOO_  
GOTO Main
```



感測器的種類與應用

感測器種類

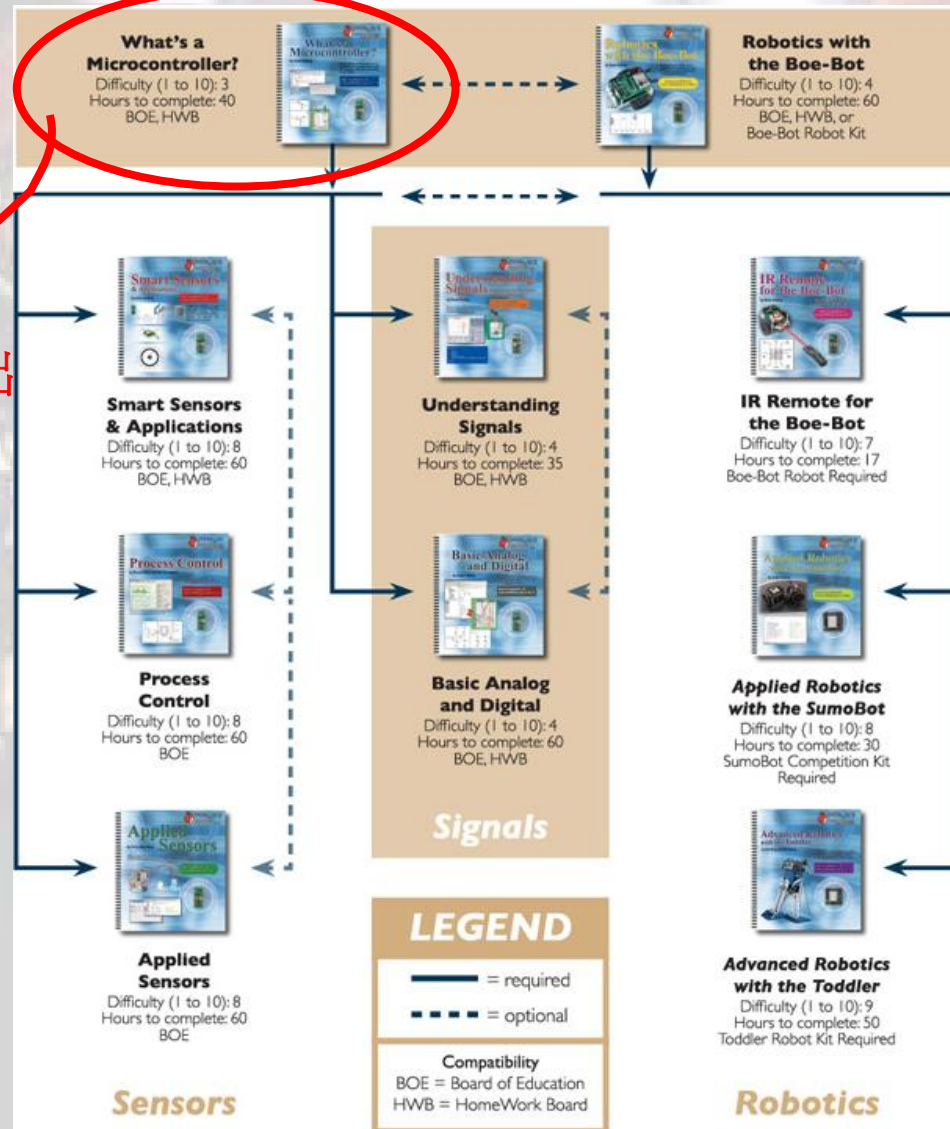
1. 加速度計
2. 壓力感測器
3. 光頻率感測器
4. 紅外線距離感測器
5. 超音波距離感測器
6. 電子羅盤
7. 非接觸壓力感測器
8. 壓電薄膜感測器
9. RFID 讀寫裝置
10. 溫溼度感測器
11. 接觸式溫度感測器
- ...

應用場合

- (傾斜角偵測、振動偵測)
- (接觸面壓力偵測)
- (光源偵測)
- (障礙物檢測, 光折射率偵測, 距離偵測)
- (障礙物偵測)
- (方向偵測)
- (非接觸導通)
- (防盜, 微震動)
- (RFID 裝置使用及原理)
- (溫度、溼度偵測)
- (溫度偵測)
- ...

BASIC Stamp 學習資源介紹

中文版即將推出



BASIC Stamp 討論區



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Announcements

Forum Name	Topics	Posts	Last Post Info
Announcements This forum contains product and administrative announcements and general information.	120	128	One Day Boe-Bot Robot Educator Seminar in Yuba City/Marysville, CA on 3/30/07 Today 2:38 PM (Andy Lindsay (Parallax))

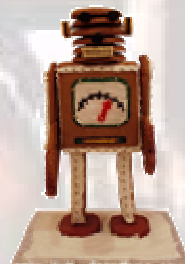
Public Forums

Forum Name	Topics	Posts	Last Post Info
BASIC Stamp Project ideas, support and related topics for the Parallax BASIC Stamp.	7425	47941	writing to text files? Today 5:54 PM (jtsmith)
Propeller chip Forum for all Propeller related discussions.	2249	21328	Float32Full ATAN inaccurate results Today 5:53 PM (Chip Gracey (Parallax))
SX Microcontrollers, SX/B Compiler and SX-Key Tool Technical assistance for all SX products, including the new SX/B compiler	1893	14801	Word Array Today 5:41 PM (SailerMan)
Stamps In Class Students and customers discuss educational projects.	516	3075	ping sensor Today 8:58 AM (iramsey)
Javelin Stamp Support and discussion for the Parallax Java-programmable Stamp module.	678	3784	Problem with LCD AppMod Today 5:01 PM (Chris Savage (Parallax))
Robotics For the Parallax Toddler, HexCrawler, Boe-Bot, Scribbler, SumoBot or general robotics discussions	1483	9864	Robot Challenge !! Today 5:05 PM (Brian Beckius)
HYDRA Discussion and technical assistance for the HYDRA Game Development Kit	37	523	Hydra Logo 1.2 now available for download! Today 2:11 PM (AndreL)
The Sandbox Topics related to the use of Parallax products but not specifically addressed by an individual forum.	2653	19773	Z-BASIC controller (ancient) Today 5:55 PM (Robert Kubichek)

BASIC Stamp的優點

- 應用領域廣泛
- 開發及學習時間短
- 開發工具、功能指令完整, 適合非機電領域人操作
- 完整的學習套件, 最適合自學
- 線上資源最豐富、免費下載
- 實現創意的最佳工具與平台

展 示



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