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DE TRES DE FEBRERO

LAEIA
Laboratorio de Arte Electrónico
e Inteligencia Artificial
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Diseñando sonidos en el espacio con dispositivos interactivos y modulares

1er Congreso Internacional de Artes

Germán Ito, Laurence Bender, Sabrina García, Magalí Lopardo

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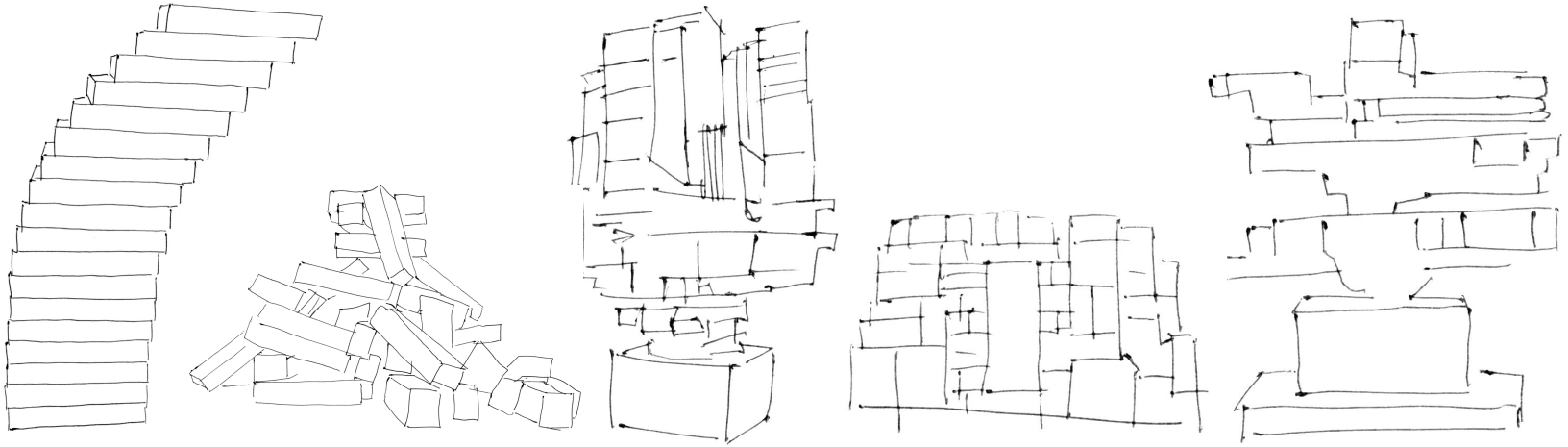


Desarrollo de objetos sonoros modulares

Interfaces tangibles

Generan secuencias sonoras programables

Interactúan con los gestos de actores participantes

Intercambian información en tiempo real

Modifican los parámetros del sonido producido

Exploración creativa

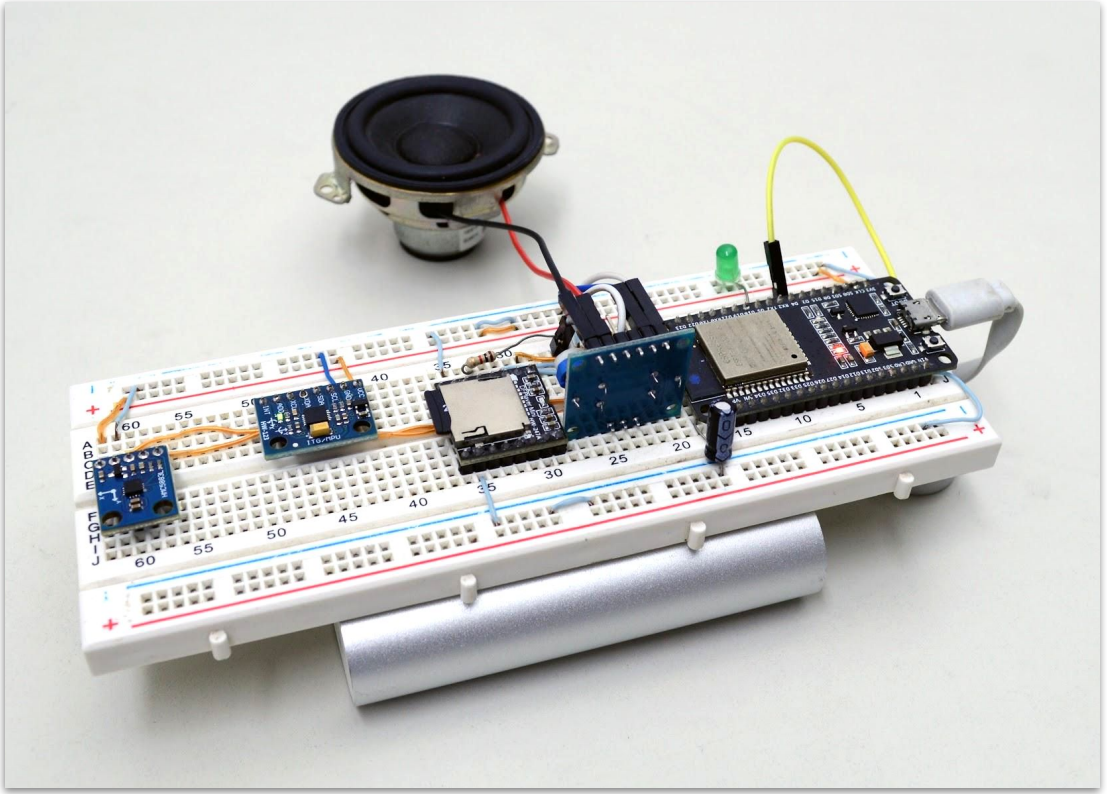
Micro hardware e Internet de las Cosas

Objetos que se pueden asir, mover y combinar

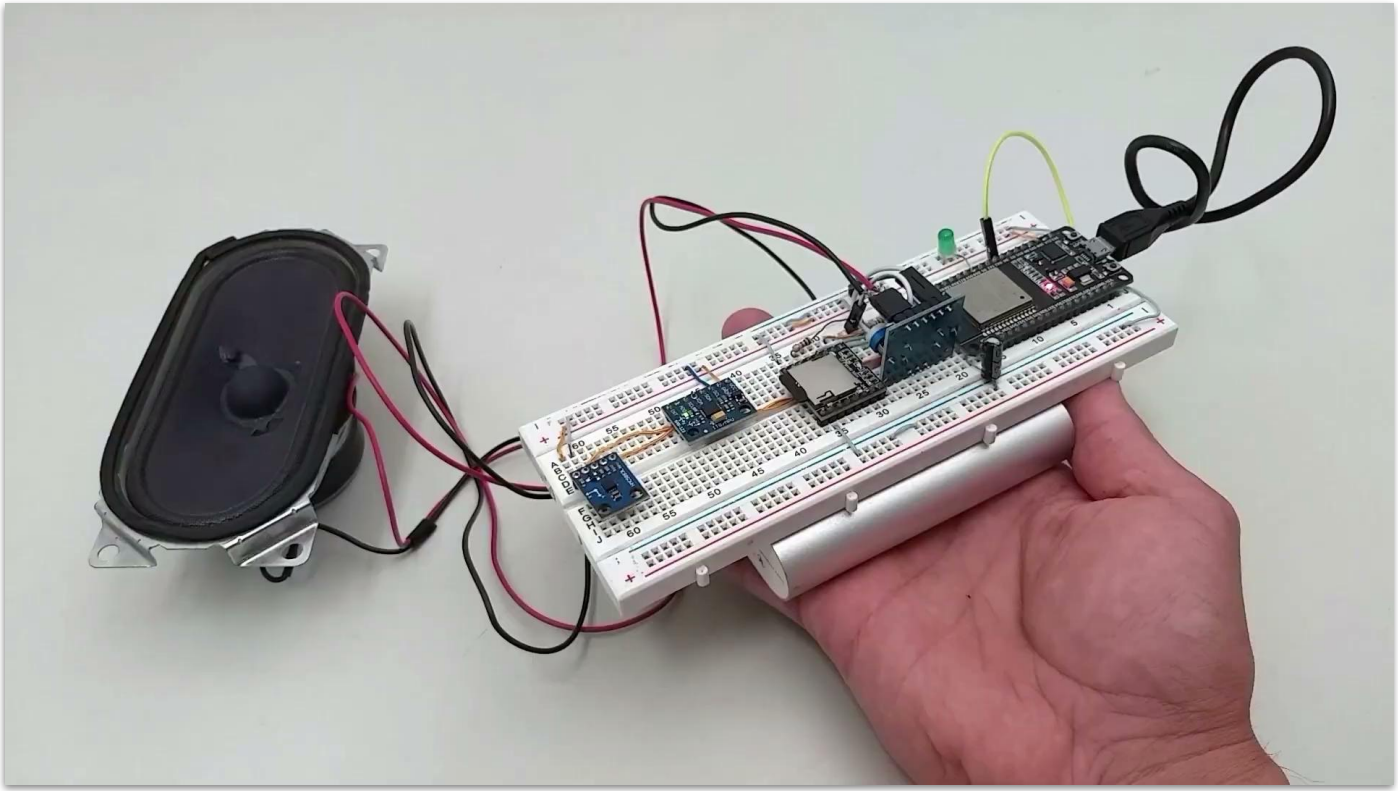
Experiencias espaciales, dinámicas y visuales de interacción

Expresión mediante gestos

Conectar el movimiento con el sonido

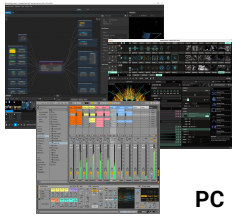


Prototipo tecnológico de un módulo

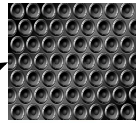


Internet

OSC/MIDI

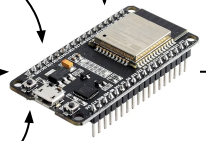


PC



acelerómetro
giroscopio

táctil
capacitivo



micro hardware

generador
sonido

parlantes

batería

objeto$_1$

objeto$_2$

objeto$_3$

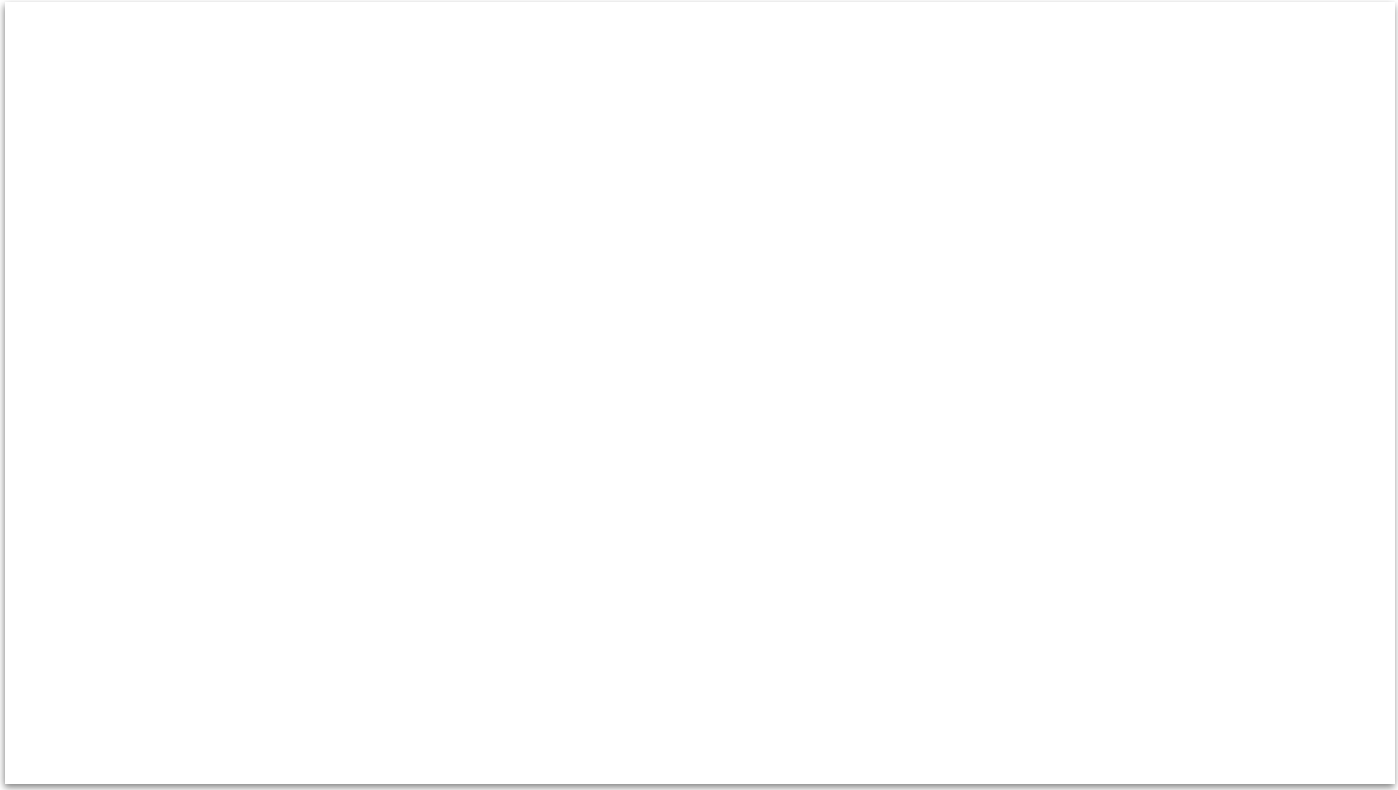
...

objeto$_{252}$

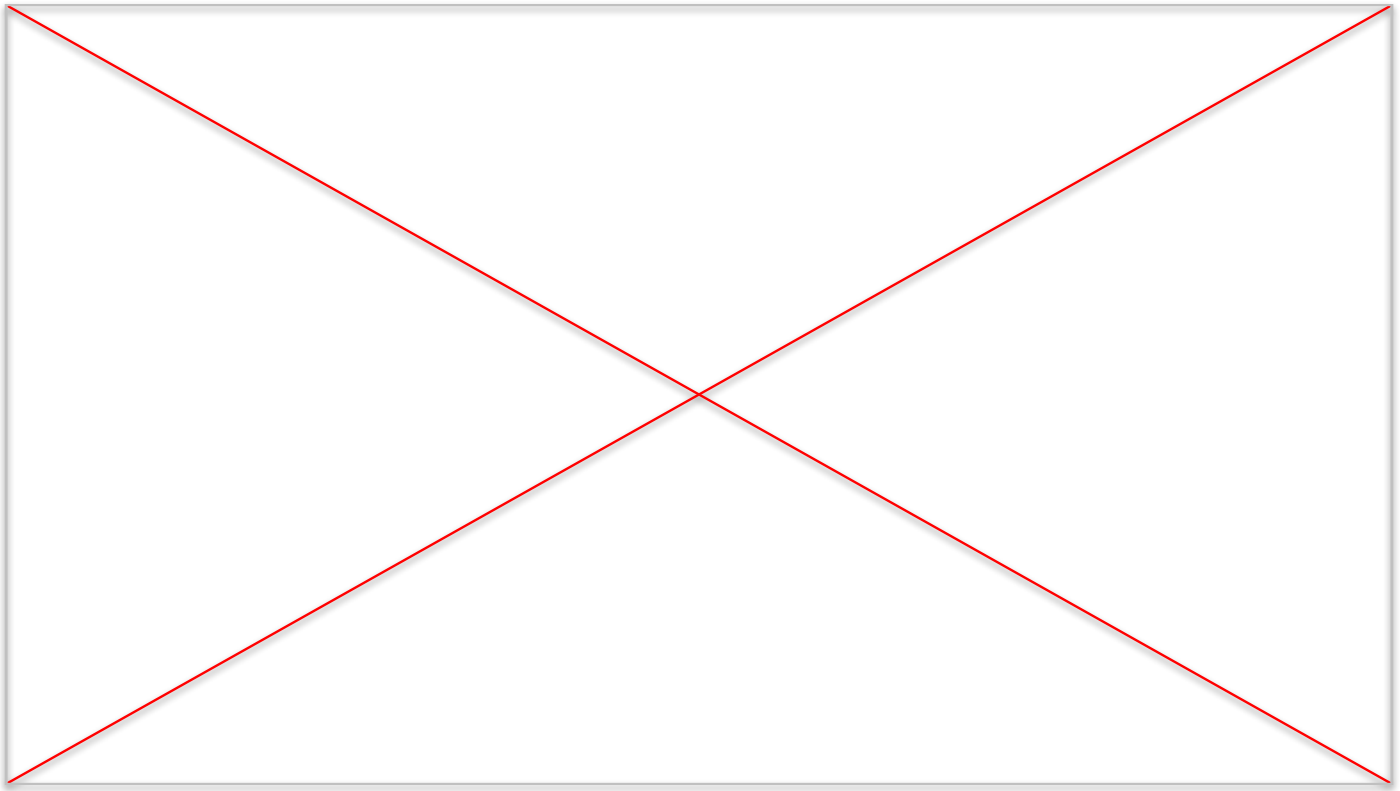
Configuraciones de interacción entre los módulos:

1) Dirigido
2) Colectivo

1) **Dirigido**: los módulos envían datos o reciben información desde una computadora central



2) **Colectivo**: cada módulo se comunica directamente con los demás módulos



Música experimental

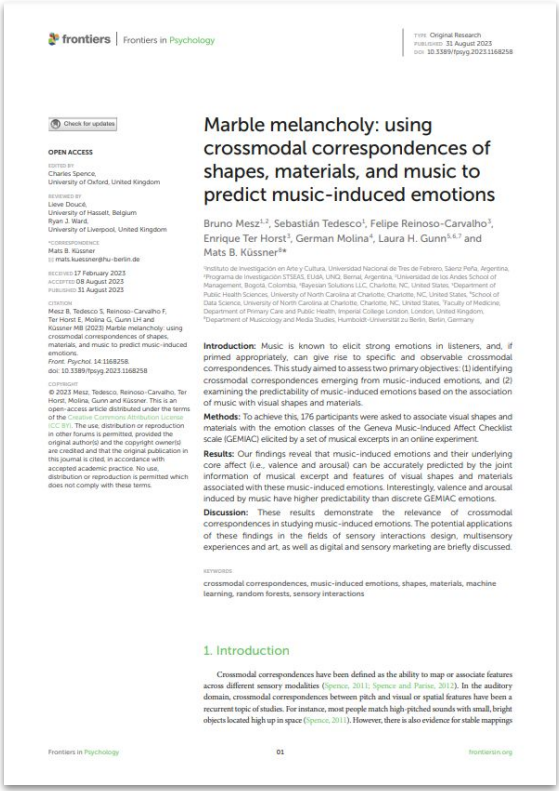
Sonificación de datos

Performance e instalaciones sonoras inmersivas

Interfaces vestibles

Acciones educativas y terapéuticas

Experiencias multisensoriales y transmodales



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EDITED BY
Charles Spence,
University of Oxford, United Kingdom

REVIEWED BY
Lièvel Droucé,
University of Hasselt, Belgium
Ryan J. Ward,
University of Liverpool, United Kingdom

*CORRESPONDENCE
Mats B. Küssner
mats.kuessner@hu-berlin.de

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Marble melancholy: using crossmodal correspondences of shapes, materials, and music to predict music-induced emotions

Bruno Mesz[1,2], Sebastián Tedesco[1], Felipe Reinoso-Carvalho[3], Enrique Ter Horst[3], German Molina[4], Laura H. Gunn[5,6,7] and Mats B. Küssner[8]*

[1]Instituto de Investigación en Arte y Cultura, Universidad Nacional de Tres de Febrero, Sáenz Peña, Argentina, [2]Programa de Investigación STISEA, EUdA, UNQ, Bernal, Argentina, [3]Universidad de los Andes School of Management, Bogotá, Colombia, [4]Bayesian Solutions LLC, Charlotte, NC, United States, [5]Department of Public Health Sciences, University of North Carolina at Charlotte, Charlotte, NC, United States, [6]School of Data Science, University of North Carolina at Charlotte, Charlotte, NC, United States, [7]Faculty of Medicine, Department of Primary Care and Public Health, Imperial College London, London, United Kingdom, [8]Department of Musicology and Media Studies, Humboldt-Universität zu Berlin, Berlin, Germany

Introduction: Music is known to elicit strong emotions in listeners, and, if primed appropriately, can give rise to specific and observable crossmodal correspondences. This study aimed to assess two primary objectives: (1) identifying crossmodal correspondences emerging from music-induced emotions, and (2) examining the predictability of music-induced emotions based on the association of music with visual shapes and materials.

Methods: To achieve this, 176 participants were asked to associate visual shapes and materials with the emotion classes of the Geneva Music-Induced Affect Checklist scale (GEMIAC) elicited by a set of musical excerpts in an online experiment.

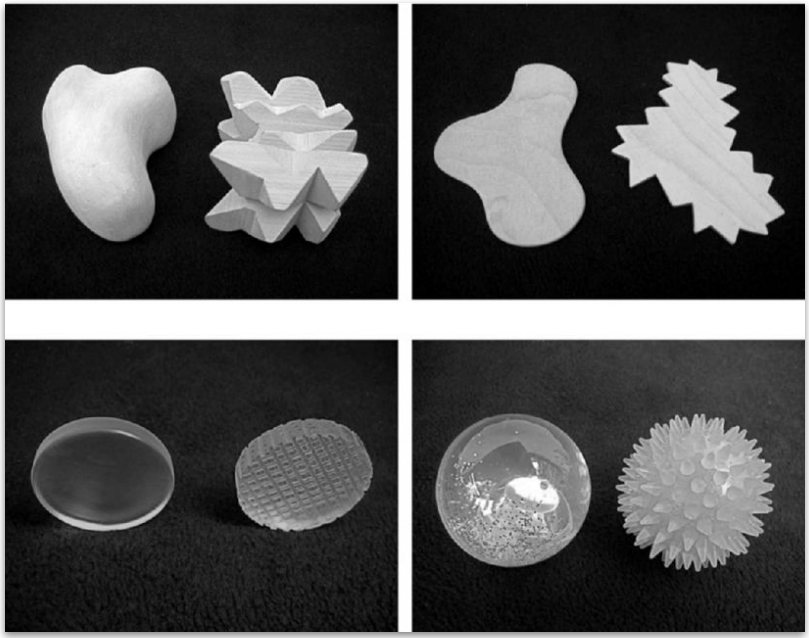
Results: Our findings reveal that music-induced emotions and their underlying core affect (i.e., valence and arousal) can be accurately predicted by the joint information of musical excerpt and features of visual shapes and materials associated with these music-induced emotions. Interestingly, valence and arousal induced by music have higher predictability than discrete GEMIAC emotions.

Discussion: These results demonstrate the relevance of crossmodal correspondences in studying music-induced emotions. The potential applications of these findings in the fields of sensory interactions design, multisensory experiences and art, as well as digital and sensory marketing are briefly discussed.

KEYWORDS
crossmodal correspondences, music-induced emotions, shapes, materials, machine learning, random forests, sensory interactions

1. Introduction

Crossmodal correspondences have been defined as the ability to map or associate features across different sensory modalities (Spence, 2011; Spence and Parise, 2012). In the auditory domain, crossmodal correspondences between pitch and visual or spatial features have been a recurrent topic of studies. For instance, most people match high-pitched sounds with small, bright objects located high up in space (Spence, 2011). However, there is also evidence for stable mappings



Variantes tridimensionales del experimento Kiki y Bouba que permiten evaluar las asociaciones sinestésicas táctiles-sonoras. Fryer, L., Freeman, J. y Pring, L. (2014). *Touching words is not enough: How visual experience influences haptic-auditory associations in the "BoubaKiki" effect*. Cognition, 132 (2), 164-173.

Muchas gracias!

https://soundblocks.surwww.com/

https://untref.edu.ar/instituto/laboratorio-de-arte-electronico-e-inteligencia-artificial

Apéndice

main

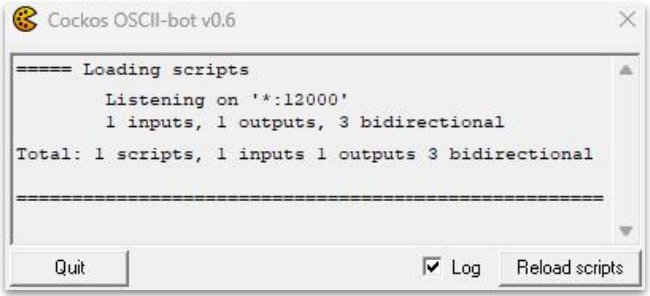
```
#ifdef ESP8266
#include <ESP8266WiFi.h>
#else
#include <WiFi.h>
#endif
#include <WiFiUdp.h>
#include <OSCMessage.h>
#include <OSCBundle.h>
#include <OSCData.h>

char ssid[] = "soundblocks";        // Network SSID (name)
char pass[] = "soundblocks";                    // Network password

boolean mozzi = false;
boolean dfplayer = true;

WiFiUDP Udp;                                    // A UDP instance to let us send and receive packets over UDP
int array_ids[] = {101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118};
int nESP = 18;
IPAddress outIp(192, 168, 10, 101); // remote IP of your computer
const unsigned int outPort = 12000;  // remote port to receive OSC
const unsigned int localPort = 12000;  // local port to listen for OSC packets (actually not used for sending)
```

Conjunto de instrucciones y datos que controlan el micro hardware.



Aplicación OSCII-bot de conversión protocolo OSC a MIDI

```
@input osc_in OSC "*:12000"
@output osc_out OSC "192.168.10.*:12000"

@output midi_out MIDI "soundblocks"
@input midi_in MIDI "soundblocks_SEND"

@oscmsg
oscmatch("/SEND") ? (
  id = oscparm(0);
  note = oscparm(1);
  velocity = oscparm(2);

  id == 102 ? (
    msg1=0x90;
  ) : id == 103 ? (
    msg1=0x91;
  ) : id == 104 ? (
    msg1=0x92;
  );

    msg2=note;
    msg3=velocity;
    midisend(midi_out);
);

@midimsg
msg1 == 0x90 ? (
  oscsend(osc_out, "iii/SEND", 101, msg2, msg3);
);
```

Conjunto de instrucciones para enrutar