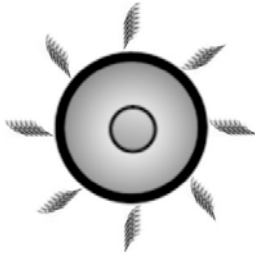
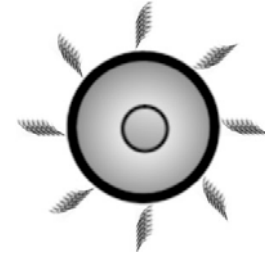


# Mini Sound Modules for Installation & Performance



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## ABSTRACT

Design of small, autonomous electronic sound modules for audio installation or interactive performance.

## Keywords

Audio, sound, electronic music, robots, diy electronics, wearable computing, installation art, multimedia performance

## 1. INTRODUCTION

This research explores the development of a flexible digital audio recording and playback toolkit, based around the ISD ICs, manufactured by Winbond.[1] In conjunction with a user-microcontroller, and custom-control interfaces a broad audio applications may be implemented. The recording capacity of 7 seconds to 16 minutes. The quality of the audio is best suited to speech or lower fidelity reproduction.



## 2. SOME POTENTIAL APPLICATIONS

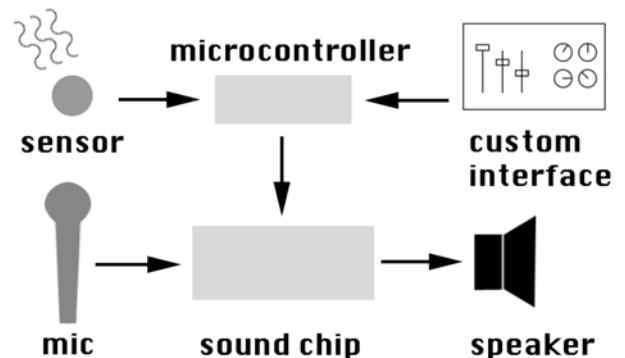
- Experimental musical instruments
- Rapidly-deployable sound installation
- Autonomous self-triggering recorder/sampler/looper/"bug"
- Attach to wearable art/ clothing
- Audio playback integrated into sculptural objects



## 3. BENEFITS OF THIS TECHNIQUE

- Small size – can be easily built into other objects
- Inexpensive (~US\$10 per unit)
- Low power – can run for many hours on 9v battery
- No moving parts – much more simple, durable, reliable than a computer
- Integrated input preamp and speaker driver – just attach mic, line input, or speaker
- Microcontroller development is widely supported by web resources

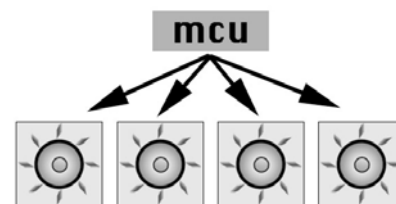
## 4. TYPICAL CONFIGURATION



A microcontroller, such as a PIC or Arduino controls the triggering or sequencing of the audio recording and playback. A variety of sensors or interface controls can be used as inputs. A microphone or other audio source is connected to the sound chip, which can output directly to a speaker or for further amplification by an external amplifier.

## 5. FURTHER EXPANSION

- Network multiple modules together using rs-485/422 to create complex "flocking" behaviors



- Wireless RF remote control
- Solar panels for fully autonomous outdoor deployment

## 6. ACKNOWLEDGMENTS

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## 7. REFERENCES

- [1] <http://www.winbond-usa.com/en/content/view/36/151>

