Integrating internet resources and inexpensive materials to evolve a Raspberry Pi into a digital button sound machine.

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ABSTRACT

The goal of this paper is to provide the details involved in designing and building a digital musical enclosure that uses a button matrix as the keys. The materials in the construction are inexpensive and accessible from online retailers, while the design is straight-forward and easily reproducable or modified.. The basic programming to get the instrument working is minimal which allows for anyone to be able to write the code, while allowing for more advanced users to create complex scores.

Keywords

NIME, proceedings, Raspberry Pi, Sparkfun

1. INTRODUCTION

2. DESIGN

2.1 Hardware

The design of the box is based upon an enclosure built by Berdahl[2]. Using BoxMaker[3], the builder is able to initiate the design process by inputting the dimensions and material thickness of the box. Using the downloaded design, the builder is able to edit the design with either Inkscape, CorelDraw, or Adobe Illustrator which allows for the creation of a project that can then be uploaded to Ponoko[1]. Depending upon the material of choice, Ponoko will cut the pieces for the box and ship them to the builder.

2.2 Software

```
__name__ == '__main__':
 Button = ButtonMatrix()
 while True:
     button_value = Button.buttonPressed()
     if button_value is not None:
         if button_value == 15 or button_value == 16 or button_value == 13:
             os.system("echo ' %d;' | pdsend 3000" % (button_value))
             time.sleep(0.05)
         else:
             os.system("echo ' %d;' | pdsend 3000" % (button_value))
             time.sleep(0.25)
     button_value = None
```


3. CONCLUSIONS

4. ACKNOWLEDGMENTS

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5. REFERENCES

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