

# Ingredients for a great Pi (Project)

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# Outline

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- On the 2<sup>nd</sup> day of Picademy I worked with an awesome team and we came up with a super cool project using everything we had learned at the previous day of Picademy.
- With good planning we individually created our parts before bringing them all together into one full project.
- Minecraft, Python, Sensors, Sonic Pi and a Lego Minifig were all used.

# So how did this happen

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- The initial idea was to make a project based on what we had been taught the day before.
- After a discussion we decided we wanted to try incorporate as many things in the one project as we could (we were a team of 6).

# The big idea

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- Use Physical world objects to move around in Minecraft and trigger events.
- Or put simply get the wee lego guy to walk about on the card and have things happen on screen!!

# Teamwork

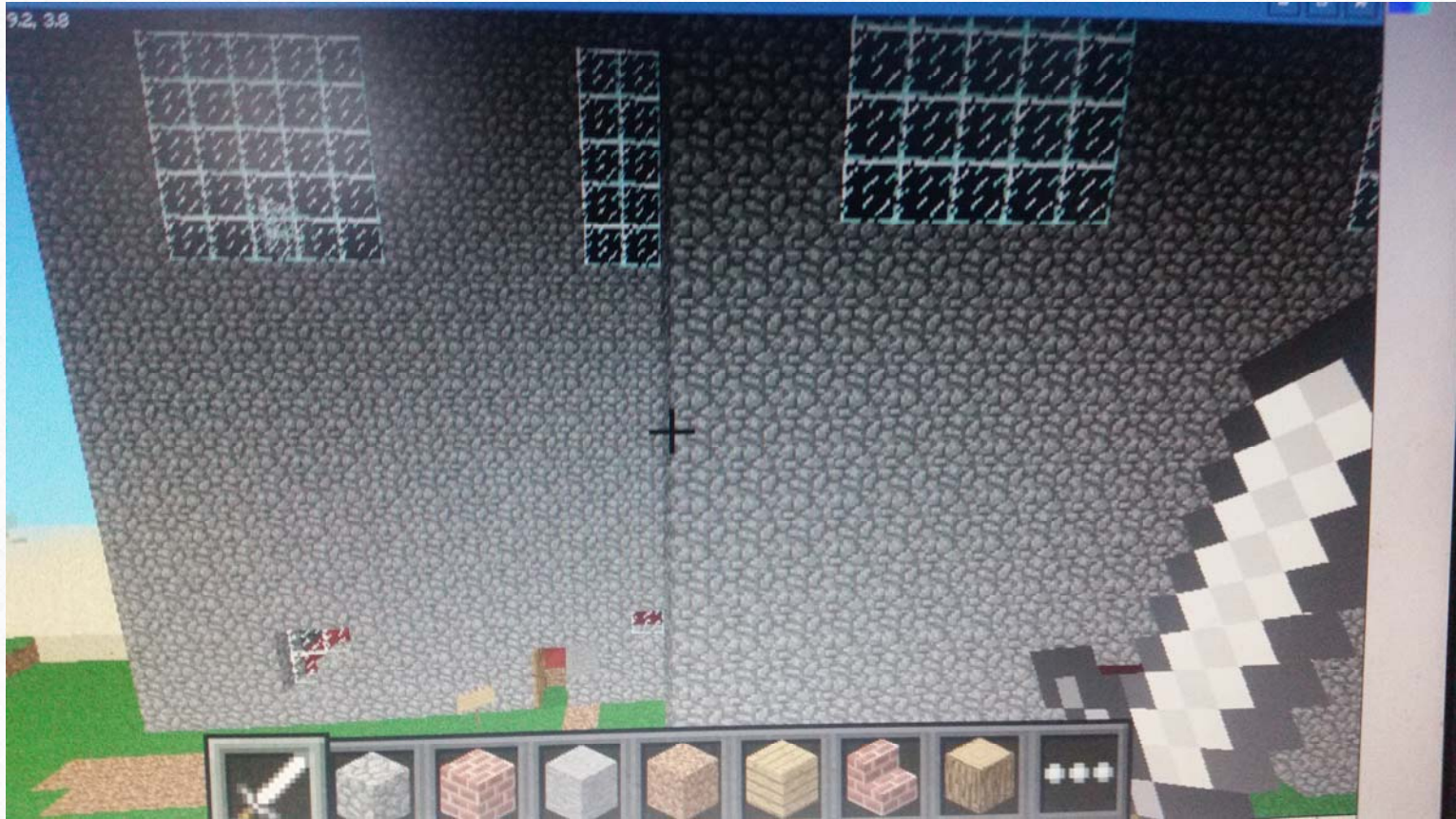
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- By taking on individual parts we were able to work on them and then gradually add in more pieces one by one and ended up with 2 programs one to create the house and the other to do everything else.

# The break down

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- Programming a house
- Programming the co-ordinates of Steve
- Creating sounds
- Programming the created sounds so that when Steve gets nearer the house the music gets louder
- Creating a simple board with 4 arrows for Lego Steve to walk on and connect it to the pi
- Programming Lego Steve to move on the cardboard which in turn moves Minecraft Steve in the game







```
File Edit Shell Options Windows Help
from mcpi.minecraft import Minecraft
from mcpi import block
from gpiozero import Buzzer
from gpiozero import Button
from pykeyboard import PyKeyboard
from time import sleep
import math
from psonic import *

c = Minecraft.create()
buzzer = Buzzer(17)
k = PyKeyboard()

buttonF = Button(22)
buttonL = Button(8)
buttonR = Button(19)
buttonB = Button(21)

#use_synth(SAW)
sleep1 = 2
sleep2 = 1.5
prevTotal = 0
#ampVolume = 10

# dummy counter to break code - remove when distance
counter = 1

def changeBeatSpeed(speedDirection):
    global sleep1, sleep2

    if speedDirection==1:
        # increaseBeatSpeed
        if sleep1 > 0.2:
            sleep1-=0.2

        if sleep2 > 0.2:
            sleep2-=0.2

        #increase amp
        #ampVolume+=1

    else:
        # decreaseBeatSpeed
        if sleep1 > 0.2:
            sleep1+=0.2

        if sleep2 > 0.2:
            sleep2+=0.2
```

```
searchdoorV2.py - /home/pi/searchdoorV2.py (3.4.2)
File Edit Format Run Options Windows Help

from mcpi.minecraft import Minecraft
from mcpi import block
from gpiozero import Buzzer
from gpiozero import Button
from pykeyboard import PyKeyboard
from time import sleep
import math
from psonic import *

mc = Minecraft.create()
buzzer = Buzzer(17)
k = PyKeyboard()

buttonF = Button(22)
buttonL = Button(8)
buttonR = Button(19)
buttonB = Button(21)

#use_synth(SAW)
sleep1 = 2
sleep2 = 1.5
prevTotal = 0
#amp/volume = 10

# dummy counter to break code - remove when distance correctly calculated
counter = 1

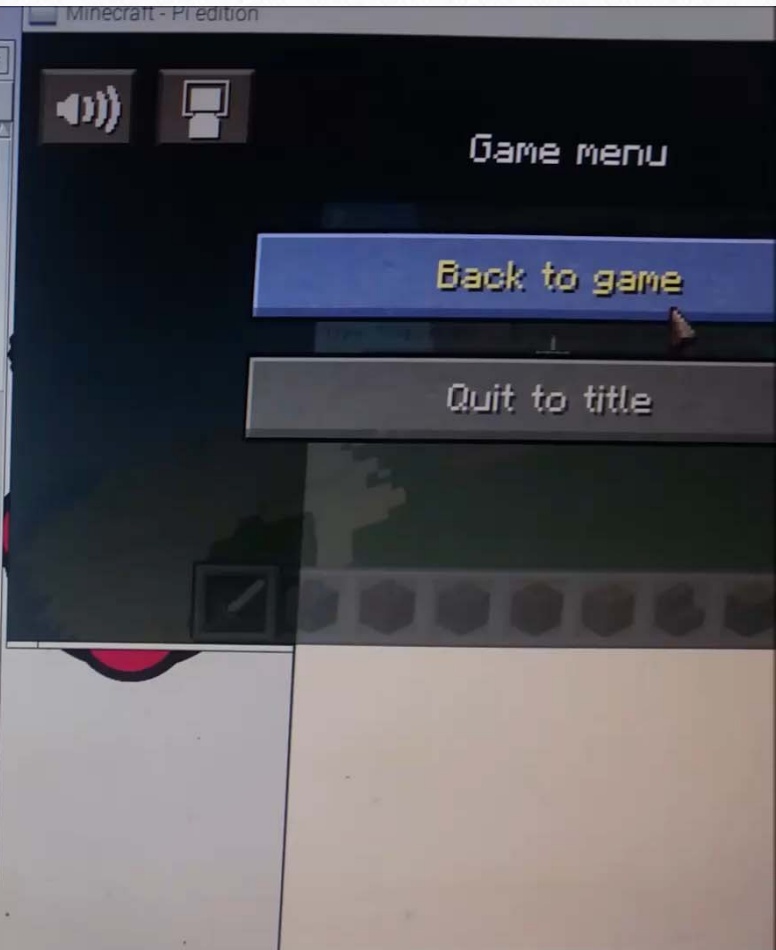
def changeBeatSpeed(speedDirection):
    global sleep1, sleep2

    if speedDirection==1:
        # increaseBeatSpeed
        if sleep1 > 0.2:
            sleep1-=0.2

        if sleep2 > 0.2:
            sleep2-=0.2

        #increase amp
        #amp/volume+=1

Ln: 31 Col: 25
```



# Be creative

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- Hopefully this will give you some inspiration for going and creating your own project
- Thanks for listening
- Any questions 😊