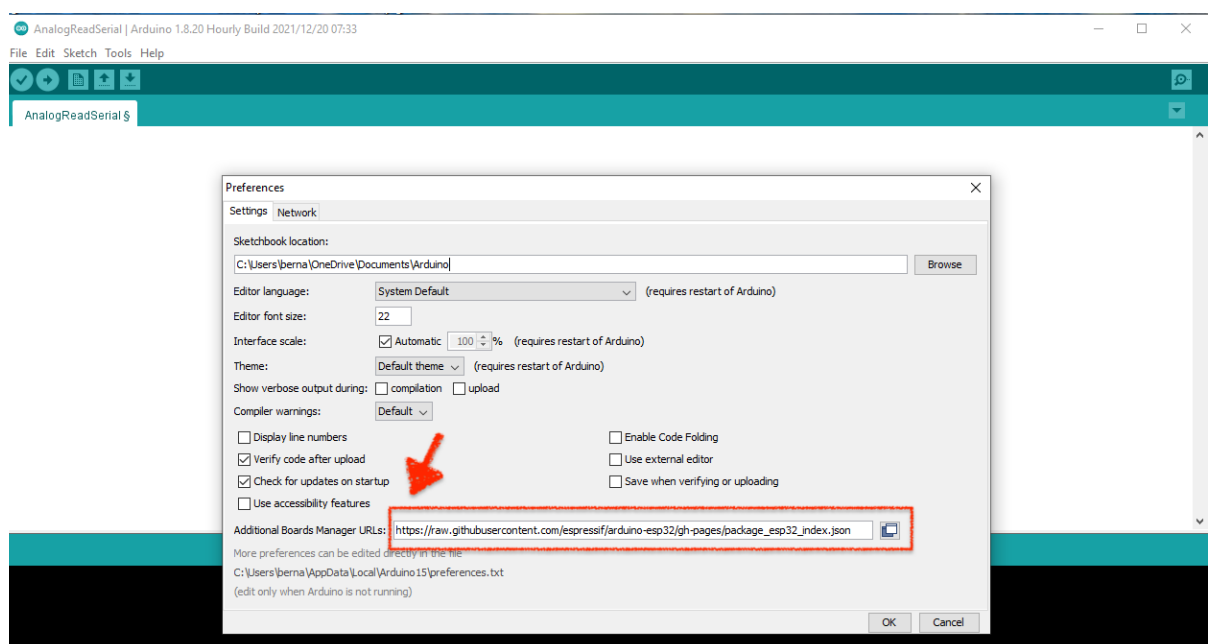


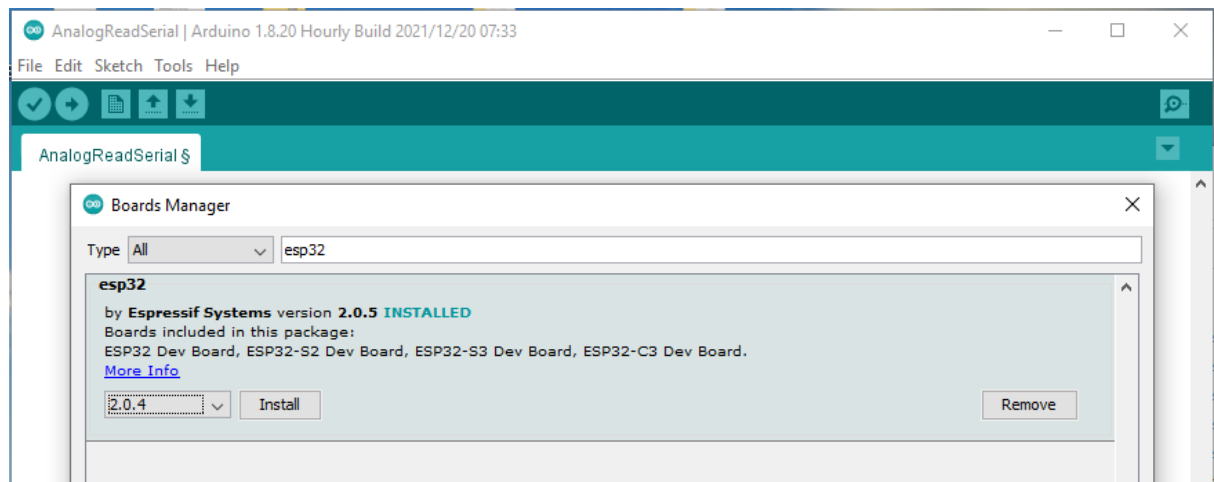
Installing Agon light™'s firmware

A step-by-step guide

1. To solder the through-hole LDO regulator on the Agon light™ board, carefully follow the instructions on **page 24** of the Hardware Manual here:
<https://github.com/TheByteAttic/AgonLight/blob/main/Agon%20light%20R1.0%20Manual.pdf>
2. **Page 25** of the Hardware Manual shows the correct orientations of the electrolytic capacitors
3. **Page 26** of the Hardware Manual shows the correct positions for the header shunts
4. Now you will need a Windows PC (Windows 10 will be fine)
5. Install the Arduino IDE, which you can download from here:
<https://www.arduino.cc/en/software>
Choose version 1.8.19 or later
6. Open the Arduino IDE
7. Go to: File → Preferences
8. In the “Additional Board Manager URLs” field, enter the following URL:
https://raw.githubusercontent.com/espressif/arduino-esp32/gh-pages/package_esp32_index.json



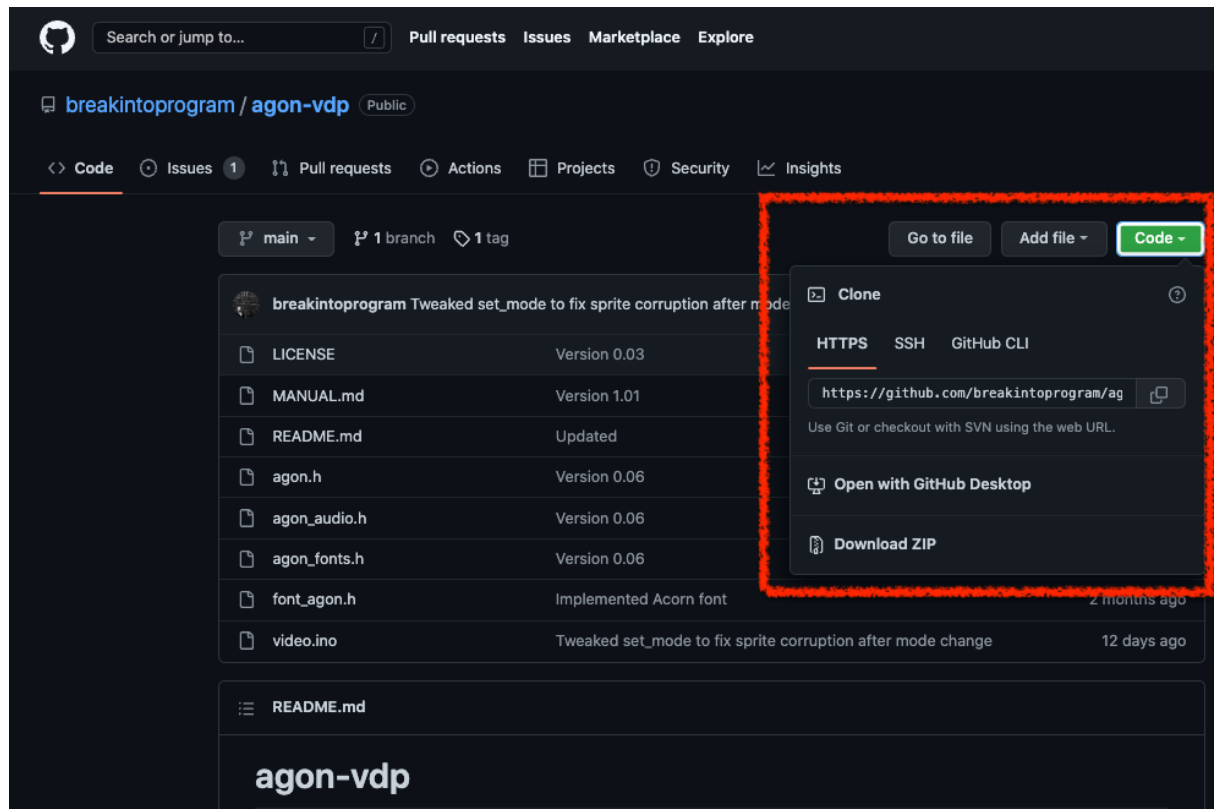
9. Go to: Tools → Board → Boards Manager
10. Type “esp32” in the search box and hit ENTER
11. Choose version 2.0.4 or higher of the “esp32” library by “Espressif Systems” and click Install



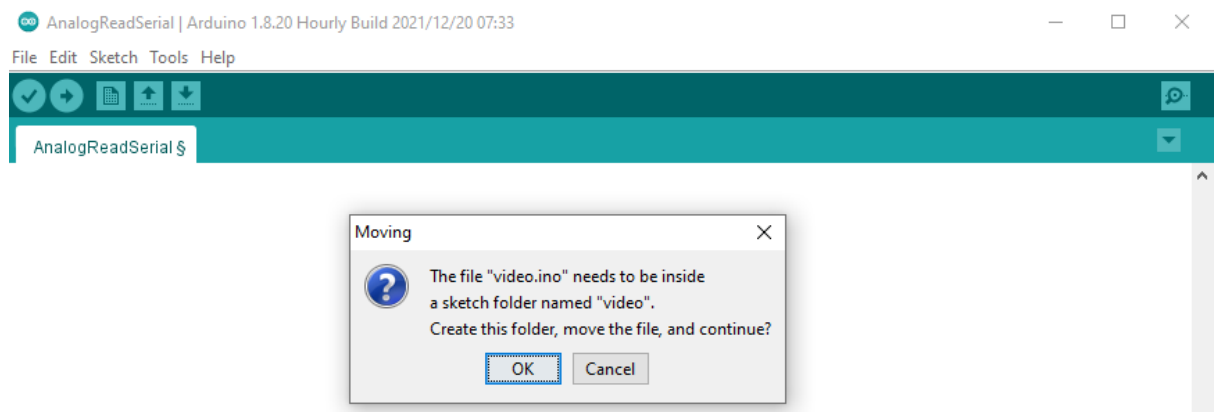
12. Go to: Tools → Manage Libraries...
13. In the search box, type “FabGL”
14. Choose the “FabGL” library by “Fabrizio Di Vittorio”, version 1.0.8 or higher, and click Install



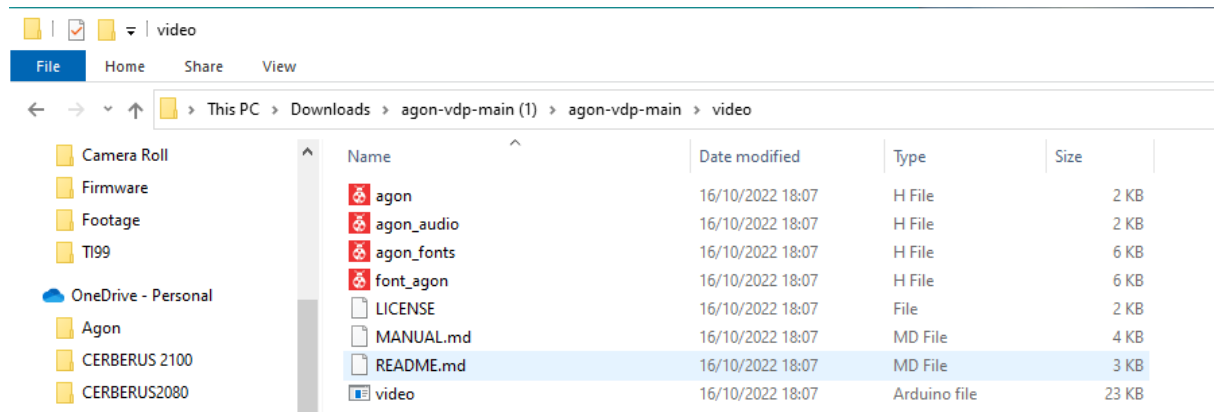
15. Now, in your web browser, go to:
<https://github.com/breakintoprogram/agon-vdp>
16. There, click on: Code → Download ZIP



17. Uncompress the ZIP file in your Windows PC
18. Back to the Arduino IDE, go to: File → Open
19. Then open the file “video.ino” that you have just downloaded and uncompressed
20. The Arduino IDE will ask if you want to place the sketch into a new folder. Click on OK to accept



21. A new folder will be created with the name “video”. Move all other files from the original uncompressed ZIP file into the new folder “video”

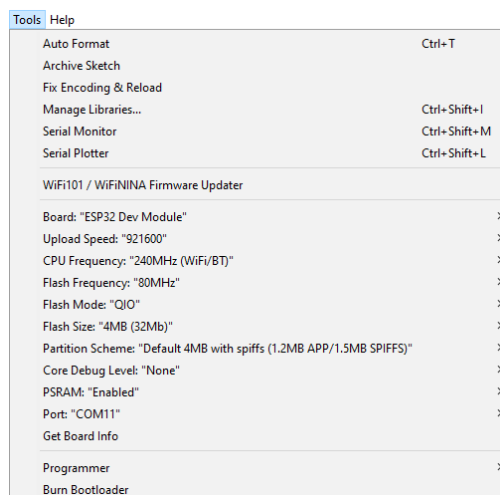


22. Connect the Agon light™ board to your Windows PC using a male-to-male (type-A to type-A) USB cable:

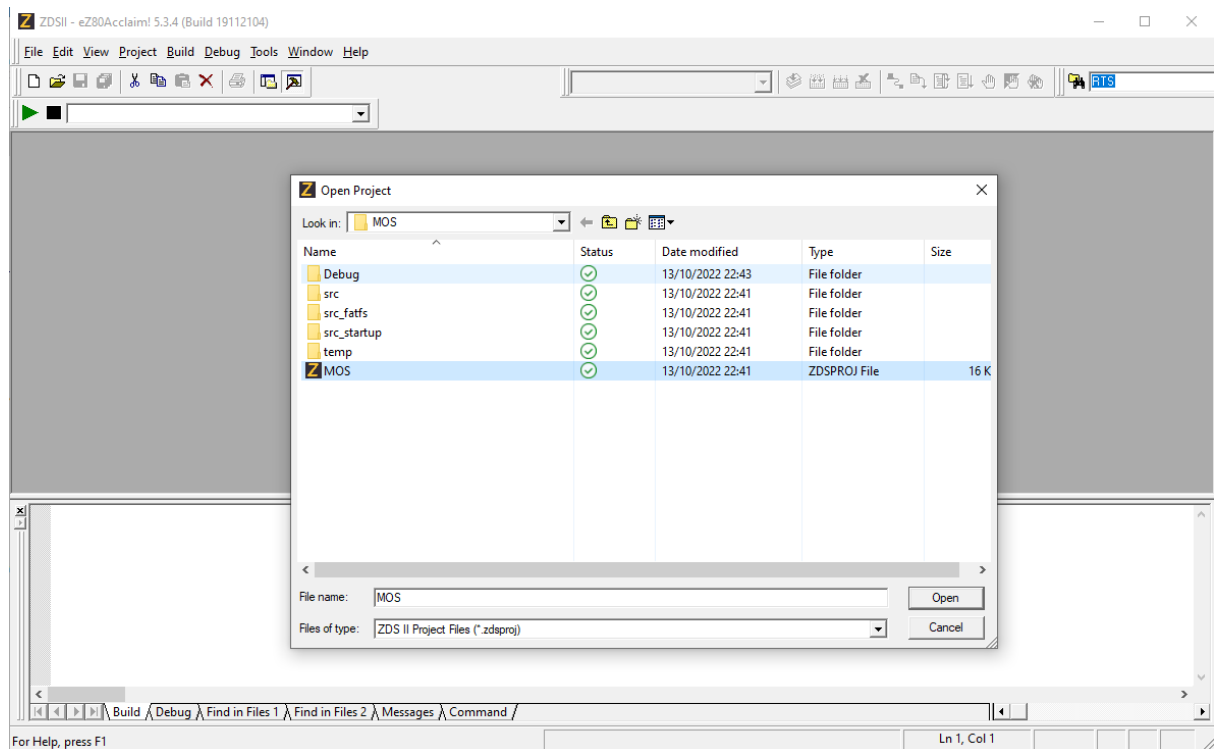


23. On the Arduino IDE, go to: Tools → Port and choose the currently active port

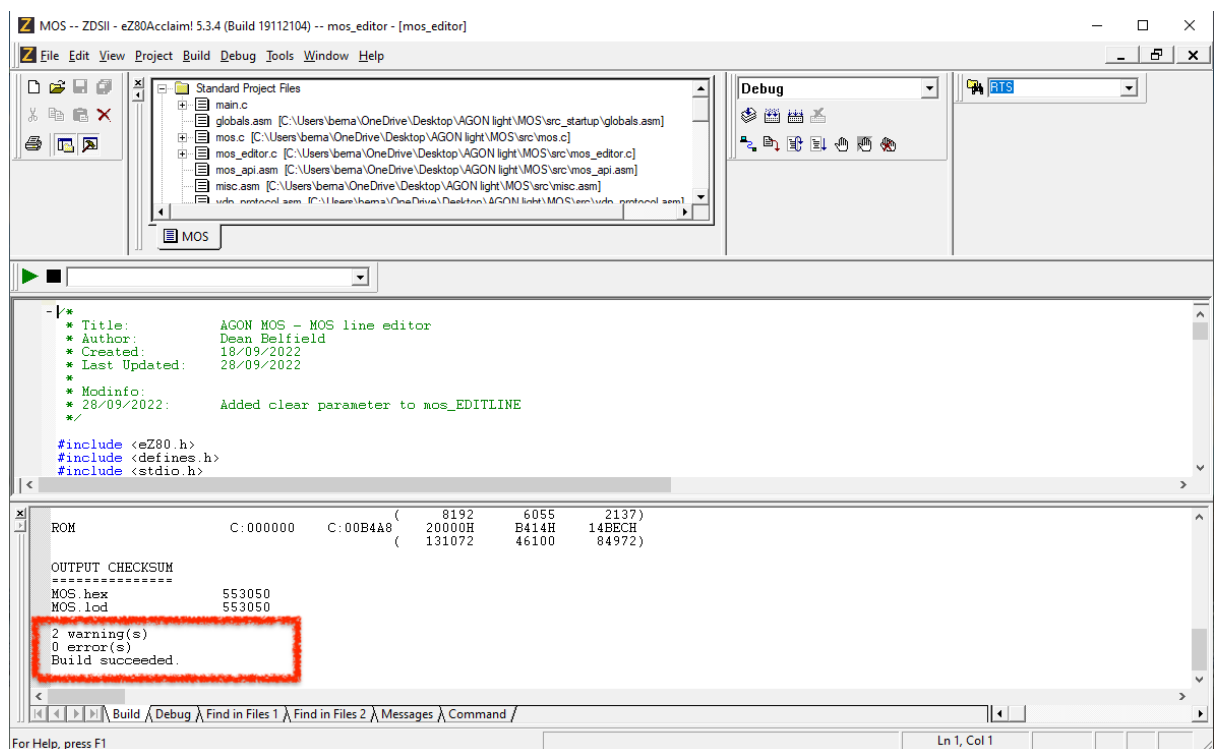
24. The other settings under the Tools menu should be as follows:



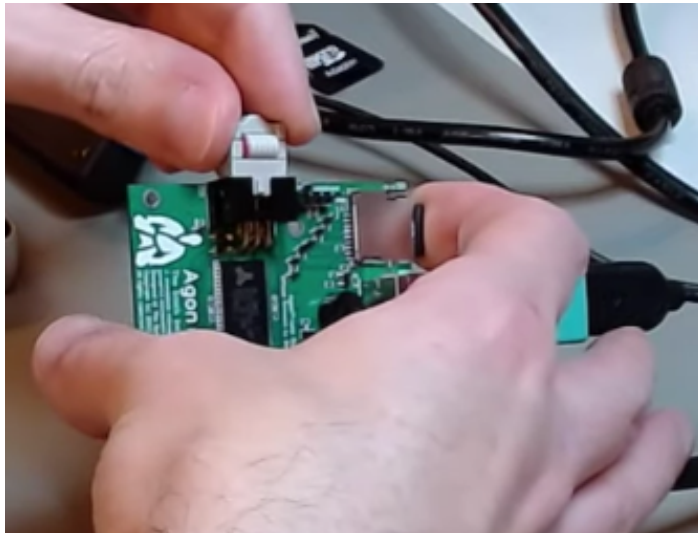
25. Now click on: Sketch → Upload and wait for the sketch to be compiled and uploaded into Agon light™ (it will take a few minutes)
26. The firmware of the ESP32 on the Agon light™ board is now uploaded
27. In your web browser, go to:
<https://github.com/breakintoprogram/agon-mos>
28. Click on Code → Download ZIP
29. Uncompress the ZIP file in your Windows PC. Among the uncompressed files, there will be one named "MOS.zdsproj"
30. Go to:
https://www.zilog.com/index.php?option=com_zcm&task=view&soft_id=38&Itemid=74
31. Read and accept the Software License
32. The ZDS2 IDE installation file will now be downloaded to your Windows PC
33. Double-click on the downloaded ZIP file and install the ZDS2 IDE on your PC
34. Open the ZDS2 IDE
35. Go to: File → Open project...
36. Open the file "MOS.zdsproj" that you have downloaded earlier:



37. Click on: Build → Rebuild all. There should be no error messages (just a couple of warnings):



38. Now connect the Zilog USB Smart Cable to your windows PC and to the ZDI port on the Agon light™ board:



39. Click on: Debug → Download Code. The project will now be downloaded into the eZ80F92 in Agon light™'s board.

40. If the process was carried out correctly, you should get the following messages:

```

MOS -- ZDSII - eZ80Acclaim! 5.3.4 (Build 19112104) -- mos_editor - [mos_editor]
File Edit View Project Build Debug Tools Window Help
Debug
Standard Project Files
main.c
globals.asm [C:\Users\...
mos.c [C:\Users\...
mos_api.asm [C:\Users\...
misc.asm [C:\Users\...
vdp_protocol.asm
interrupts.asm [C\
timer.c [C:\Users\...
sd.c [C:\Users\...
spic [C:\Users\...
diskio.c [C\Use
ff.c [C:\Users\be
ffsystem.c [C\U
ffunicode.c [C\
uart.c [C:\Users\
serial.asm [C\U
MOS
/*
 * Title:         AGON MOS - MOS line editor
 * Author:        Dean Belfield
 * Created:       18/09/2022
 * Last Updated:  28/09/2022
 *
 * Modinfo:
 * 28/09/2022:    Added clear parameter to mos_EDITLINE
 */

#include <eZ80.h>
#include <defines.h>
#include <stdio.h>
#include <stdlib.h>
#include <string.h>

#include "mos_editor.h"
#include "mos.h"
#include "uart.h"

extern volatile BYTE vpd_protocol_flags;

extern BYTE cursorX;
extern BYTE cursorY;
extern BYTE screenX;

```

```

Connected to target eZ80F92_Agon_Flash
Starting debug session [project:MOS, configuration:Debug]...
Cpu eZ80F92, USB Smart Cable Firmware Version is 1.60, SN #070209-0030
Loading file C:\Users\berna\OneDrive\Desktop\AGON light\MOS\Debug\MOS.lod...
Loading file C:\Users\berna\OneDrive\Desktop\AGON light\MOS\Debug\MOS.lod successful.
Checksum (NOT including pad bytes): 0x553050

```

41. Now turn Agon light™ off by removing the USB cable from it. You can also close the ZDS2 IDE

42. In your web browser, go to:
<https://github.com/TheByteAttic/AgonLight>

43. Click on: Code → Download ZIP

44. Uncompress the downloaded ZIP file in your Windows PC
45. Select the “uSD card files” folder, then copy it
46. Insert a uSD card in your Windows PC
47. Paste the folder “uSD card files” on the uSD card
48. Eject the uSD card from your Windows PC
49. Insert the uSD card into the Agon light™ board
50. Connect a VGA monitor and a PS/2 keyboard (or a PS/2-compatible USB keyboard, via a PS/2 adapter) to the Agon light™ unit
51. Turn the Agon light™ board on by connecting it to power via the USB cable

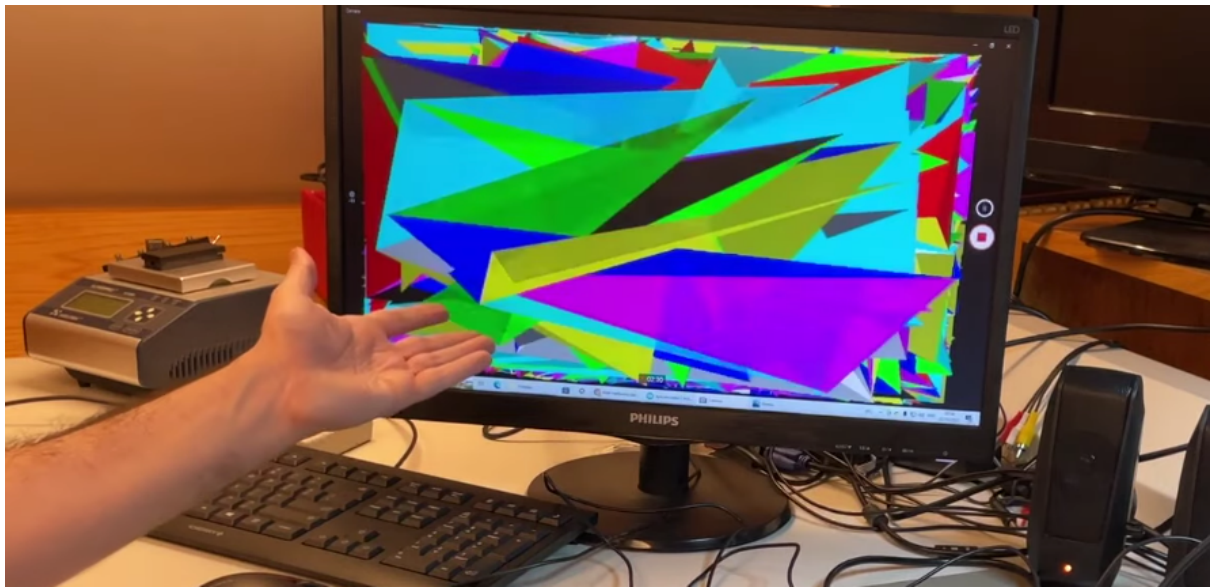


52. You should now see the following text on the screen:

```
Agon Quark UPD Version 1.01
Agon Quark MOS Version 1.01
*OK
*OK
BBC BASIC (Z80) Version 3.00
(C) Copyright R.T.Russell 1987
>■
```

53. You are now ready to test the Agon light™ unit. Type:
LOAD “triangles.bbc”
followed by ENTER
54. Type “RUN” followed by ENTER

55. You should now see random colored triangles being rendered on the screen:



56. Press ESC to stop execution

57. Now type:
LOAD "sound.bbc"
followed by ENTER

58. Type "RUN" followed by ENTER

59. You should now hear tones coming from Agon light™'s piezo buzzer

60. Press ESC to stop execution

61. You are now done. If any step above is unclear, you can watch the following step-by-step video:
https://youtu.be/gztIQh_klwM