In this project, it is proposed to create a monitoring system using a camera above the Ultimaker machines, which staff and students can use to check the progress of the print and to check that the part has been created as expected. This aims to reduce delays in project construction and reduce wastage of 3D printed material.

The hardware is a laptop computer, with an integrated camera.

The software is an Ubuntu virtual machine. In this virtual machine, we created a script, which requires the "fswebcam" program to be installed on the computer. If it is not installed, the script will install it automatically. The script is designed for Debian-based operating systems.

This is the scrpt:

|  |
| --- |
| #!/bin/bash |
|  | FSWEB=$(dpkg -l |grep fswebcam) |
|  | if [ -z "$FSWEB" ]; then |
|  | sudo apt-get install fswebcam |
|  | fi |
|  | SIZES=('176x144' '320x240' '352x288' '640x360' '640x480' '1280x720') |
|  | echo -n "Enter the number of fotos: "; read -n 1 FRAMES |
|  | echo "" |
|  | echo "1. ${SIZES[0]}" |
|  | echo "2. ${SIZES[1]}" |
|  | echo "3. ${SIZES[2]}" |
|  | echo "4. ${SIZES[3]}" |
|  | echo "5. ${SIZES[4]}" |
|  | echo "6. ${SIZES[5]}" |
|  | echo -n "Select the resolution: " ; read -n 1 SELECT |
|  | echo "" |
|  | echo -n "Enter the delay between all photos (s): "; read -n 1 DELAY |
|  | echo "" |
|  | F=0 |
|  | INDEX=$(($SELECT - 1)) |
|  | RES=$(echo ${SIZES[$INDEX]}) |
|  | while [[ $F < $FRAMES ]]; do |
|  | F=$(($F + 1)) |
|  | IMAGE=Photos/"Jose-$(date +"%Y-%m-%d\_%H:%M:%S").jpg" |
|  | fswebcam -r $RES $IMAGE |
|  | if [[ $DELAY > 0 ]]; then |
|  | sleep $DELAY |
|  | fi |
|  | tar -czvf Photos.tar.gz Photos |
|  | done |

When the script is run, the user will be prompted to enter the number of photos to be taken, the desired resolution, and the delay between photos. For the resolution, the user can select a list of options with different sizes.

Once all values have been entered, the script will take the photos with the selected resolution and the specified delay and save them in a folder called "Photos" in the current directory. After taking all the photos, the script will pack all the photos into a tar.gz file called "Photos.tar.gz".

It is important to note that if the script is run multiple times, the previous photos will be overwritten, as it uses a filename that includes the current date and time.

Thanks to this script, it will be possible to monitor printouts through photos.