RED = Important info to pay attention to
BLUE = Additional details in another document
PURPLE = Linux familiarity necessary

Step 1: FLASH-TV Camera Setup

- ☐ If the living room is so big that the camera cannot cover all the positions the child can watch TV from, ask the family about the place where the child watches TV from the most to decide on the camera location and angles
- ☐ Set the camera at a height where it can get the best view of facial features like eyes of target child for gaze estimation
- ☐ Choose from one of the below camera mounting options (check slides for details)
    - ☐ Wall mounting (most preferred)
    - ☐ TV top mounting
    - ☐ Table top / Console top mounting
- ☐ Adhesives for mounting (check slides for details)
    - ☐ For most cases Command strips should be able to hold the camera
    - ☐ Strong adhesives like velcro need to be used on rugged surfaces like stone walls. On dry walls it peels off the paint.
    - ☐ Wipe the surface with alcohol wipes before sticking the adhesive strips
    - ☐ Wait for the surface to dry fully then attach the commando adhesives to the camera
    - ☐ Attach the Command strip to the wall then press the camera to make sure the strips are hooked properly
- ☐ Check that the camera is connected properly to the housing via USB
    - ☐ Run the cheese command to see the camera feed
    - ☐ Adjust the camera angle to best cover the places that the child watches TV from
    - ☐ Use the foam wedges to restrict the freedom of movement of the camera (check slides for details)

Step 2: FLASH-TV Housing Setup

- ☐ Find a place for the housing near the camera
- ☐ Connect the power plug of the housing to the source (use power extension cords if necessary)
    - ☐ This boots the device directly
- ☐ Connect the monitor to power source on the same extension cord as the housing
- ☐ Connect the monitor to HDMI output from the housing
- ☐ Log into the device and test the internet connection
- ☐ Check time synchronization on the device

Step 3: FLASH-TV Gallery Building

- [ ] Ideally this only needs to be done for one device and then the faces can be transferred as explained in the steps below
- [ ] Make sure that there is a folder named `123XXX_data` where 123 is the family ID and XXX is the device ID in the Home > data folder (/home/flashsysXXX/data)
    - [ ] If it isn't there, then full_initial_configuration.sh was not run properly or you need to run participant_change.sh to update the IDs
    - [ ] DO NOT manually create or rename the folder, run participant_change.sh and enter the new family ID (or run full_initial_configuration.sh if there are other issues)
- [ ] Now start the gallery building
    - [ ] From runtime_scripts run the build_gallery.sh script
    - [ ] Check slides for further instructions
        - [ ] Press `t` to track target child face
        - [ ] Press `s` to track sibling face
        - [ ] Press `p` to track parent face
        - [ ] Press `u` to untrack face
        - [ ] Press `q` to quit/close the program
- [ ] Select the faces
    - [ ] They should be in Home > data > 123XXX_data > face_crops (/home/flashsysXXX/data/123XXX_data/face_crops)
        - [ ] parent_faces, sib_faces, tc_faces
    - [ ] Select 5 faces for each identity (slides for instructions)
        - [ ] Put them in sib_faces_selected, tc_faces_selected, par_faces_selected
- [ ] Note that sometimes there might not be 3 identities in the family (maybe only the mom and child are participating)
    - [ ] In this case, you will end up with less than 3 identities for gallery building
    - [ ] Use the gallery images in Home > flash-tv-scripts > filler_faces (/home/flashsysXXX/flash-tv-scripts/filler_faces) as substitutes for missing identities
        - [ ] Copy the respective filler face images (5 of them) into the real missing identity folder (for example sib_selected folder in face_crops folder)
- [ ] Rename the faces for the FLASH_TV set up (slides for instructions)
    - [ ] From runtime_scripts, run create_faces.sh
    - [ ] The 123XXX_faces folder should be copied into the 123XXX_data folder automatically

- [ ] Verify this
- [ ] The target child's images should be named 123XXX_tc1.png through 123XXX_tc5.png
- [ ] For the sibling, 123XXX_sib1.png through 123XXX_sib5.png
- [ ] For the parent, 123XXX_parent1.png through 123XXX_parent5.png

- [ ] Copy the gallery faces (123XXX_faces) onto an external storage medium in order to copy them onto any other Jetsons being used for the current participant
- [ ] Now Shift+Delete the face_crops folder (NOT THE 123XXX_faces folder)

Step 3b: Copying Faces onto Current Participant's Other Jetsons

- [ ] To properly copy the face images (only onto the current participant's Jetsons)
  - [ ] From the external storage medium, select the 123XXX_faces folder and copy it into the Home > data > 123YYY_data folder (/home/flashsysYYY/data/123YYY_data) of the new device
    - [ ] XXX is the ID of the device you took the faces FROM
    - [ ] YYY is the ID of the device you are copying the faces TO
    - [ ] 123 is the family ID that matches the file and folder names on all of the devices being used for the current participant
    - [ ] If the 123YYY_data folder isn't there, then full_initial_configuration.sh was not run properly or you need to run participant_change.sh to update the IDs
  - [ ] From runtime_scripts, run face_id_transfer.sh
    - [ ] When prompted, enter the ID of the device you are transferring faces FROM, the one with ID XXX, this should be the same as the ID in the name of the faces folder on the external storage medium
    - [ ] When prompted, enter the ID of the device you are transferring faces TO, the one with ID YYY, this should be be the same as the ID of the device that you are currently setting up
    - [ ] Go to the Home > data > 123YYY_data folder (/home/flashsysYYY/data/123YYY_data) and make sure the 123XXX_faces folder has been renamed to 123YYY_faces and the images inside it have been renamed as well
  - [ ] Once the 123XXX_faces folder has been properly copied and set up on all of the devices being used for the current participant, Shift+Delete it from the external storage medium

Step 4a: FLASH-TV Gaze Estimation Test (with image output)

- ☐ This must be tested on every device being used for the current participant after the above steps have been completed
- ☐ Stop and disable service files
  - ☐ Run stop_services.sh or do it manually by copy pasting the commands from it
- ☐ Run run_flashtv_system.sh from the runtime_scripts folder (check the slides for details)
- ☐ It will take 4-5 mins for the algorithm to start
- ☐ Make sure the target child is present in front of the camera and watching TV during this time
- ☐ Use this time to go set up the camera and housing in the other room
- ☐ Once you start seeing the gaze output log make sure the recent timestamp is not too delayed from the current time
  - ☐ The expected delay is about 4-5 secs
- ☐ Check that everything is running correctly (check the slides for details)
  - ☐ Go to Home > data > 123XXX_data > 123XXX_test_res (/home/flashsysXXX/data/123XXX_data/123XXX_test_res)
    - ☐ Check if FLASH-TV picked up the correct target child in the images
    - ☐ If not, make sure the gallery is built correctly
      - ☐ The target child's images should be named correctly and present in the expected location
    - ☐ Check if the gaze estimated directions make sense
      - ☐ Red arrows pointing the direction the child is looking at should mostly correspond with their actual gaze
  - ☐ Go to the data folder and check the 123XXX_flash_log_timestamp.txt file
    - ☐ Every 20 secs the gaze log is dumped into this file
    - ☐ See if it is written as expected (see slides for details)
  - ☐ Stop the script run_flashtv_system.sh
    - ☐ Press Ctrl+C on the terminal and close and kill the terminal if it doesn't exit
- ☐ Now Shift+Delete the test results images folder (123XXX_test_res) and proceed to the next step

Step 4b: FLASH-TV Long-Term Service Setup (without image output)

- ☐ This must be set up on every device being used for the current participant after the above steps have been completed
- ☐ Make sure that all of the relevant service files (flash-run-on-boot.service, flash-periodic-restart.service, homeassistant-run-on-boot.service) are located in /etc/systemd/system and open them in a text editor to make sure that the device ID and family ID values are correct in all of the folder paths
    - ☐ If they are not, then full_initial_configuration.sh was not run properly or you need to run participant_change.sh in the flash-tv-scripts folder
- ☐ Start and test the services
    - ☐ Run test_services.sh or do it manually by copy pasting the commands from it
- ☐ It will take 4-5 mins for the FLASH-TV algorithms to start again
    - ☐ Make sure the target child is present in front of the camera and watching TV during this time
    - ☐ Use this time to work on setting up the other FLASH-TV system
- ☐ Check the service status of flash-run-on-boot
    - ☐ sudo systemctl status flash-run-on-boot.service
    - ☐ Around 1 min 10 secs you should see the camera turning on (LEDs)
    - ☐ Around 2 min 42 secs log file will be created
    - ☐ Around 3 min 6 secs you should see data logging in the log files
- ☐ Once the algorithm starts logging gaze, check the flash tv logs
    - ☐ Open Home > data > 123XXX_data > 123XXX_flash_log_timestamp.txt (/home/flashsysXXX/data/123XXX_data/123XXX_flash_log_timestamp.txt where “timestamp” will be the time the log was initialized)
        - ☐ Every 20 secs the gaze log is dumped into this file
        - ☐ See if the timestamped data is populated every 20 secs

Step 5: Bluetooth Smart Plug Connection to Home Assistant

- ☐ Home Assistant should have already been partly configured before going to the family’s home using the first part of homeassistant_setup.txt in the flash-tv-scripts folder
    - ☐ Make sure that those steps have been done
    - ☐ Continue to follow homeassistant_setup.txt for the rest of the setup at the family’s home

Step 6: FLASH-TV Final Exit Steps

- ☐ Turn the wifi off
- ☐ Lock the screen
- ☐ Disconnect the monitor HDMI output
- ☐ Disconnect the USB hub (keyboard and mouse)
- ☐ Close the lid on the housing (fix the screws)
- ☐ Make sure the camera is on
    - ☐ If not check for any loose power cables
    - ☐ Once power is fixed, the system will reboot and the camera should turn on in 4 mins automatically (flash-run-on-boot.service)
- ☐ Fix any loose hanging wires using wire clips
- ☐ Leave instructions for family as to let the study team know if the camera turns off for more than 20 minutes