Q.VITEC

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Improvements

The following were improved:

1. Centrifuge serial communication was improved again.
    - In version 1, each command took more than 13 seconds (for example, setting rotor position from 1 to 2)
    - In version 2, each command took around 7.5 seconds.
    - Now, in version 3, it is taking around 4.5 seconds as we are rotating the rotor fast while setting the position)

2. Triggering Vision Q.400 sometimes from camera 2 gives an image without light which leads to dark image. I noticed it a couple of times and I fixed it. From now on, there won't be any dark images from any camera.

3. If we have an NG tube, now we will have 24 images in the NG folder irrespective of any type of NG.

4. Replaced the last character of barcode in the following way before writing the results.
    - Red = 1
    - Green = 2
    - Orange = 3

5. Now, we are also saving the OK images of the tubes in OK folder.
   Almost, in every OK folder of green and orange tubes, we will have two sub folders (in red case, we will have only one):
    - Vor_Zentrifugation: Images of OK tube before centrifugation (Barcode, Color and Level).
    - Nach_Zentrifugation: Images of same OK tube after centrifugation (Barcode and Level).

6. Changed the flow of green and orange tubes.
   From camera 1, now we go to Pneumatic gripper to adjust the position like red tubes.

7. Changed the flow of green and orange tubes.
   From camera 1, now we go to Pneumatic gripper and then to camera 2 and with camera 2, we do the following:
   - Look for the barcode by rotating the robot by 15 degrees. If barcode is OK, then we proceed or we place the NG tube in Error stand with skype message.
   - (To solve the problem that was faced in Adorf, wrong barcode reading will mix up the patient results)
     If the barcode is OK, we rotate the robot by another 0.5 degree and detect the barcode for the second time. If the detection of both barcodes is equal, then we proceed or we continue to rotate the robot by 15 degrees.
   - Detect the colour and based on the colour, the robot decides whether to place the tube in centrifuge racks or in sysmex.
   - Finally, we detect the level. In level detection, I used the same colour values for green and orange as in red but needed to be adjusted based on the results later.

8. Changed the flow of green and orange tubes.
   After centrifugation, we decap the tube and go to camera 2 again to find the barcode orientation. After finding the barcode, robot also makes an image of level.
   If for some reasons, at this stage (almost very rare), if we didn't find the barcode while rotating the robot by 15 degrees, then we rotate by 10 degrees and even if it is not detected, then we rotate by 5 degrees. If barcode is not detected, we place the tube in Error stand and almost 132 images will be there in NG_NachZentrifugation folder.

9. When the robot is coming to pick the tube from camera 1, if somebody manipulates with the tubes, then it goes back and trigger camera 1 again. Making sure, not to pick the wrong tube.

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Open and nice to have features.

1. FritzBox Calling
   Tested with sample script, communication from qMaster to Fritzbox was successful and can also make calls to mobile and landline.
   Also tested with robot, works well but there is a chance of missing the Call for about 10 percent.
   I figured out another way of doing it which occurred to me while I am writing this point, (idea: centrifuge commands are blocking the main code, so the idea is to make a second client which doesn't depend on the qMaster). This has to be tested, if this works, bloody hellllllllllllllll, we can read every minute movements at the light curtain.

2. Unloading the rack from the Dimension machine.
   If the barcode was not activated in the labor list before the machine starts, then it is an unfinished tube in the rack. When we try to pick the rack, we press the run button to set its picking position, meanwhile if the unfinished tube is activated at this time in the labor list then the tube is inside the machine and so the picking of rack fails. At this stage, I am killing the robot program. The only option at the moment is that they have to restart the robot.
   Solution: Start the machines only if the csv files in the labor server is empty which means all the tubes are already activated.
   This also solves the problem, if we are starting the sysmex with only 1 or 2 tubes as the robot is faster in this case than the labor server.

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