May 3 2020

Pick-it Webinar

Please find below the answers to questions related to our webinar on May 1 2020

Hello. Are all of your application CAD based? Can your software work with a large quantity of part numbers that don't have a CAD model?

Pickit can work with both CAD and models from the camera. Both are very straight forward to set up. However, for parts with complex shapes CAD does bring additional value in the matching process, for example when bin picking crank shafts. For all the parts in the comfort zone, as shown in most video's in the presentation a CAD file is not mandatory.

Do you have parts in mind but no CAD file available? We might have videos where we solve similar parts.

Why was the PICKIT not able to detect the good and bad parts towards the end of the bin in the SYRINGE APPLICATION (running at 1.7 seconds)?

For challenging parts, it is not uncommon that 3D vision systems cannot fully identify the last parts in the box. The syringes are mainly glass which means we only see a tiny fraction of the actual part. For the last parts in the bin, some parts are not visible enough, some parts fall through the grating of the box (not fully recognizing them) and some also stand up straight. For these parts, Pickit cannot find the correct orientation to pick them. However the vision system can identify the bin is not empty and can trigger a signal to the controller to have an operator intervene, get a new box, etc.

Again, for parts in the comfort zone, emptying bins is not an issue at all.

How critical is lighting?

Lighting and vision have a love-hate relationship. For 3D vision however, we only rely on the point being in the right spot. The color of the point does not matter whereas with 2D the color of the pixel makes or breaks everything. That means that 3D vision more robust against changing environment lights. However, for glossy, shiny, polished or parts with many cavities/holes we see that acquiring the points (in the right location) is difficult and light plays a much more important role.

Rule of thumb is that you can't use the camera outside to avoid sunlight intensity and for problematic parts you might need to take additional measures. For the majority no additional measures are necessary.

Hi I noticed the Pick-It sensor can be stationary or robot mounted. I guess in both cases it is necessary somehow to learn to the robot / pick system how they are positioned relative to one another in order to relay the information of where the part is located relative to the pick it sensor to the robot. How is that process done? How moving the pick it sensor slightly could impact the picking operations (following a collision for instance? I am used to the iRVision technology from FANUC and the establishment of the sensor position and orientation is critical to perform the calculation (I would assume this works in a similar fashion). Thank you for the presentation!

Yes you're right, extrinsic or simply robot-camera calibration is crucial to get an application up and running. We at Pickit simple do this with a calibration plate (comes with the system) in a multi-poses calibration process. For us user-experience is again of importance and calibrating the two takes you 10 minutes the first run and just a few

minutes afterwards. More info on our online knowledge base for each of the scenario's (camera on robot or camera stationary):
https://docs.pickit3d.com/docs/pickit/en/2.3/documentation/calibration/index.html

As many factories may be quite dusty, how long do cameras perform at the intended quality before cleaning is required? Is there any way to prolong cleaning of the vision system for maximum uptime?

That is a very good remark. Depending on how dusty the environment is there are many measures to take: have an operator clean the camera each production run, enclose the camera to avoid extensive dust. Enclosing can also be done in different levels, we have customers with camera on robot mount that has a moveable shield. This way the camera is not only protected from dust but also from wet coolants in CNC machining. The whole camera is taken into the machine in the loading and unloading process. When a detection needs to be triggered, the shield temporarily moves away clearing the whole view.

A question again from my side, how is the interest rating defined, manually entered by the attendant?

Once again thank you for your questions, and more importantly your time on Friday.

If you have any further questions or would like additional information, please do not hesitate to contact us here at Advanced Motion & Controls Ltd.