

# Top 5 Ways to Avoid the Pitfalls of a Medical Machine Vision Project

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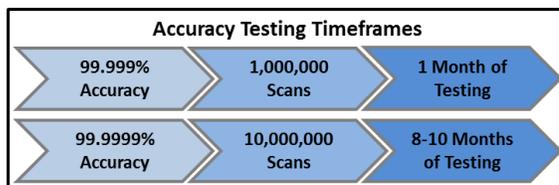


JADAK Article

Many people we talk to have had some exposure to a machine vision project in the past. Some of them express dissatisfaction with their experience. We typically find this is due to the final result not matching their initial expectations. In addition, often the level effort required to properly execute the project was not appropriately estimated at the outset.

Taking on a full-scale machine vision project can be overwhelming. Our recommendation is to work with a machine vision expert to determine the amount of engineering resources required up front to fully support the project. Make sure your internal engineering staff has the necessary bandwidth, or work with a dedicated machine vision company that has the engineering resources necessary to support the project requirements. Follow these general guidelines:

1. Work with a partner that is specialized in machine vision implementations specific to your industry or application. There are several companies that have experience in machine vision; some are generalists, while others have expertise in particular fields such as industrial or healthcare/medical. Approaches to each implementation can vary as widely as the applications themselves, so choosing a partner with an engineering team that has years of experience in your field is critical to the long-term success of your project. Also, a dedicated machine vision partner will help with determining estimated costs, project planning and execution, and contingency plans if requirements change.
2. Be sure to set expectations up front. Determine the exact requirements for the machine vision solution and define which pieces are required and which ones are optional.
3. Establish reliability goals for the machine vision project. This piece is extremely important since it will help determine the level of testing that is required by engineering. Does your process require the machine vision system to be 99.9% accurate or 99.9999% accurate? For example, a major challenge with clinical analysis is that OEMs do not always control the item being inspected—often a



test tube with a barcode. The presence of test tubes of varying size and shape can lead to difficulty in accounting for different pattern types and exceptions. Test tubes with damaged barcodes and poor print

quality only complicates this further. Our experience has demonstrated the importance of building an image library of all possible variations and then performing complete and exhaustive testing on the images. The engineering

testing effort required for this portion of development is often underestimated and can lead to unexpected costs down the road, which we seek to mitigate by planning for contingencies at the outset.

4. Does the machine vision software package need to be customized to meet a specific need? Keep in mind, if the machine vision software package does not fulfill all needs of the inspection station out of the box, it can often be tailored specifically to enhance reliability. For example, optimizing decoding algorithms can help successfully decode test tube barcodes even when they are partially visible or comprised of poor print quality.
5. Decide what type of support will be needed down the road. If required changes do occur a few years after implementation who will be responsible to support those changes? Will your internal engineering staff be available to support that effort for the life of the product? Today's top medical devices can be in the field for an average of 5-10 years and, in some cases, maybe longer. Leading OEM's are turning to suppliers that offer a suite of value-added machine vision services, including life-cycle management to support their device until it's retired from the field.

So, before you embark on your next machine vision project, ask yourself: "What are our expectations and requirements?", "Do we have the internal engineering resources to execute?", "Can we support this project for the life of the device?", "What is an acceptable threshold for error?", "How do we increase efficiency and reduce costs?"

If any or all of these are a challenge to answer, contact the medical machine vision experts at JADAK for a machine vision consultation. Call us at (315) 701-0678 or email me at [tpellegrino@jadaktech.com](mailto:tpellegrino@jadaktech.com).



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