| Must | Want | Is not |
| --- | --- | --- |
| Have an adjustable 90mm camera | For the adjustment to use DC motors to allow for adjustment from test bench software. | Autofocusing or automatic adjustment. |
| Have motor control to move the chip stand in the x,y,x,pitch and yaw directions. | Automatic calibration to a chip based on a triangulation algorithm | Manually moved or set. |
| Fiber connection with angle of incident adjustment | This angle of adjustment to use DC motors and be controlled from test bench software | Dynamically adjustable during operation; it should be statically aligned with manual adjustments only. |
| Have functional GUI with controls for position in 3D space, activation of vacuum, laser wavelength, laser intensity, camera zoom, and test bench lighting. | Intuitive and user-friendly GUI | Lacking essential controls and functionalities |
| Have the ability to measure, accumulate, and export output data into CSV files for later analysis. | Want the ability to see plots based on the input parameters within the test bench software | To address signal processing/noise reduction of the actual plots. |
| System can accurately and reliably propagate a laser beam through an optical fiber into a device on a photonic integrated chip. | Some way to do tracking for fine alignment to a specific device. | Fully automated and will require user input. |
| Include a functional vacuum mechanism to securely hold the chip onto the testing station during testing. | Vacuum to use a compressor to reduce the noise of the testing bench. | Crucial to be integrated into the software. |
| Mounted onto a pre-existing lab table with 12mm holes for mounting. | The testing station is modular meaning it can be moved easily after mounting. | Is not supposed to be vertically mounted. |