4.3 Industrial Applications

My industry is production of circuit boards and whole electrical products at a medium to high scale. Our biggest problem when it comes to daily work is the uncertainty of how long we will produce for any given customer and when they will order batches of products and when they don’t need any. This has been a large problem in the past as we don’t want a large turnover of workers, and it takes time to hire and train new ones when we suddenly need some. However, autonomous systems capable of adjusting to multiple different products and tasks, could help with this. As of now we have tried to go for simple automatic solutions, either to automate dangerous tasks or remove bottlenecks, but we have found that this only works for large and stable customers. There is also the problem that automatic solutions often take up a lot of space, which takes time to change the use of if they are no longer in use.

With even just low intelligence autonomous solutions, using some system for free flow of products between stations, a multi-product assembly line could be created. This would take up a lot less space and allow for the same tools and space to be used for multiple products. Likely, there should be interaction with humans, as some tasks might be too specific for robots, but the autonomous system can simply treat these as any other stations to.

The problem we are facing with this right now is the large initial investment cost for the factory, but even just a very small and simple solution could be built on and expanded. For future projects, the flow of products between locations could also be baked into the system, and one large autonomous production plant could be created. With multiple locations doing the same tasks, it could even adjust to downtime at some places and shift the workload elsewhere. Adding more intelligence, it might even predict maintenance and downs time or even when to produce or stop production for different customers.