Saving time and Reducing errors with iLogic

Luné Riezebos

AUTODESK. UNIVERSITY



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About GEA and me

- GEA:
  - One of the largest technology suppliers for processing industries in the world
  - Close to 17,000 employees
  - Dairy farming and Processing
  - Food
  - Beverages
  - Pharma
  - Chemical
  - Utilities
  - Marine

- About me:
  - Luné Riezebos
  - 44 years old
  - Living in the Netherlands
  - Over 20 years of experience as an engineer.
  - Over 17 years of experience with Inventor
  - Recently started giving webinars for GEA



What is model enhancement

- Team of 4 people
- Driven by business
- iLogic
- Working with Specialist
- Vault structure
- Create manuals
- Training
- Hypercare

- India (Vadodara)
  - Dutt Thakar
  - Gowtham Surisetti
  - Bhavik Suthar
- Netherlands
  - Me



PMA Bowl

Goal

- To recreate PTC CREO functionality in Autodesk Inventor and get all views automated on drawings.

Challenges

- The result on the drawing needs to be fast and all views including the details must be automated and remains intact with the model.

Video

Result

- All drawings and views are correctly generated.
- Modifying the model is fast.
- The result was an improvement over the original and we even solved some other issues.

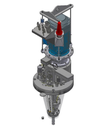
















Pro|ENGINEER WILDFIRE 5.0

AUTODESK INVENTOR

Table Automation



Goal

- Create an iLogic alternative for adding data to the tables provided by Inventor instead of doing it conventional way.





Challenges

- Keep it flexible so extra tables are easily added



WEIGHTS		
Description	Weight	Unit
Weight agitator assembly	400	kg
Weight empty vessel (without agitator)	14200	kg
Total weight crystalizer assembly	18200	lbs
Total weight crystalizer operating	80000	lbs

[Video]



Result



- Information is added via Excel
- Tables are placed automatically upon running iLogic rules.
- Spacing is automated
- User can add tables if desired
- 50% time saving



Transition Piece

Goal

- Reduce engineering time on the transition piece.
- According to ATEX standard.

Challenges

- Configuring the model must be easy
- Old model was failing because the mode is not made with Sheetmetal.

Video

Result

- The input is form driven
- Build in manual
- Sheet metal parts.
- 70% reduction





WEIGHTS		
Description	Weight	Unit
Weight agitator assembly	4500	kg
Weight crystallizer (without agitator)	45000	kg
Total weight crystallizer assembly	150000	lbs
Total weight crystallizer operating	300000	lbs











Marine template

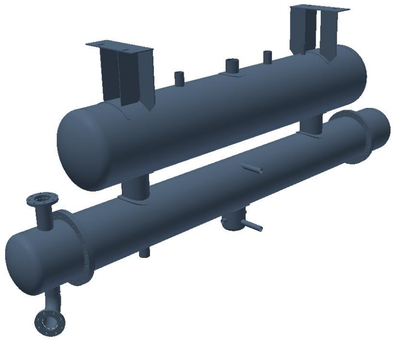
Goal

- Reduce engineering time on the transition piece.
- **Challenges**
- configuring the model must be easy

Video

Result

- The input is form driven
- Build in manual
- Norm (ISO and ASME are included)
- AutoCAD 40 hours, Inventor 8 hours per project

















Water pump

Goal

- Create a from driven iLogic model for experienced inventor users
- To configure the assembly with Lego approach so that the subassemblies can be used for different products.
- Frame is to be updated automatically with respect to the size & no of pumps selected
- GA drawing to the updated with the Mass, COG & Part list on the drawing.

















Challenge

- Many possible outcomes
- Maintaining the library components.

Video

Result

- Resulted in decrease of design time to 60% per a skid.
- Several pipe standard incorporated
- Frame according to standard populated from content center.

Atomizer

Goal

- Creating models that can handle most configurations of F100 Atomizer
- Implementing intelligent design in the Atomizer 3D/2D workflow
- Both std. and of-standard setup of F100 must be configurable
- Making a fully PDM/ERP integrable model of F100 Atomizer

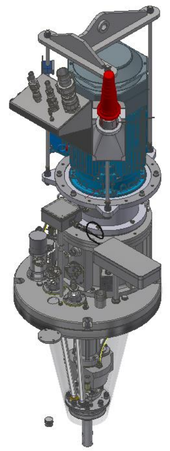
Challenge

- Current BOM structure in ERP/Bluestar must be maintained
- Lack of fully detailed 2D/3D models in current Vault
- Establishing a variant based model through iLogic
- Implementing of Library files for Motors

Video

Result

- A model that is reliable and configurable with regards to std. 5xEMC F100 Atomizers
- With regards to of-standard Atomizer, most of the configuration possibilities are done
- No indication for time saved because no model/drawings exist

















Brine Cage

Goal

- Create a automated brine cage for new inventor users
- Weight of the cage and product must be calculated
- Provide all drawings and flat patterns for production
- Provide strength calculations for lifting parts

Challenges

- All parts must be ready for production

Video

Result

- 3 weeks to 1 day
- Suppression of perforation to increase performance
- Flat pattern are created.
- All drawings are created (manual corrections are needed)
- Hoisting calculations in the model.

















CIP Tank

Goal

- Create a from driven iLogic model for experienced inventor users
- To configure the assembly in a way that nozzle connections, ladder and man holes are update as per the user selection .
- Configure the tank with and without insulation.







WEIGHTS		
Description	Weight	Unit
Weight agitator assembly	4500	kg
Weight vessel (without agitator)	45000	kg
Total weight crystalizer assembly	150000	lbs
Total weight crystalizer operating	300000	lbs











Challenge

- To maintain the design data on one drawing.
- Maintaining the BOM with respect to Bluestar BOM.

Video

Result

- Resulted with a fast and efficient model.
- Configurable ladder, railing and insulation
- Maintains same look and feel for all the tanks.
- Complete design reside in one document and can modify at any instance.
- Button for PDF export in form
- 50% time saving.

Personal experience



WEIGHTS		
Description	Weight	Unit
Weight agitator assembly	4500	kg
Weight crystallizer (without agitator)	45000	kg
Total weight crystallizer assembly	150000	lbs
Total weight crystallizer operating	300000	lbs













Tips

- iLogic can only automate those things which are possible in Inventor, not something which
- Inventor can’t do manually.
- Keep the rules simple and understandable. Don’t make it more complex.
- Create iLogic in parts and subassemblies and call forms
- Use A, B, C, etc. in images (for forms) instead of descriptions
- Rename parts and assembly in your model browser.
- Use inbuilt snippets, as they are very informative and has lot of information.
- Push down as little Parameters as possible.
- Don’t create elaborate rules, create multiple small rules
- Keep the modelling clean and according to the planned objective before adding iLogic.
- Give rules identical names instead of keeping default names. (Rule0, Rule1 etc.)
- Avoid using event triggers, until and unless it’s necessary
- Avoid using manage components until it is a library component

Hand out

Goal

- iLogic reminder model
- One model/assembly per iLogic function
- Description per model
- Live demo



WEIGHTS

Description	Weight	Unit
Weight agitator assembly	4500	kg
Total weight crystalizer (without agitator)	45000	kg
Total weight crystalizer assembly	15000	lbs
Total weight crystalizer operating	60000	lbs















Questions

- Link



WEIGHTS		
Description	Weight	Unit
Weight agitator assembly	4500	kg
Weight crystallizer (without agitator)	45000	kg
Total weight crystallizer assembly	75000	lbs
Total weight crystallizer operating	90000	lbs

















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