

CREATE MODEL: TIME TILL FAILURE

The following is a step by step guide to build and deploy a new model in the elipsa platform.

In the Time Till Failure example, you will be building a model that predicts a value using a supervised machine learning algorithm. With supervised machine learning, your data must contain a column that you are looking to predict. In this example, your machine data must contain a column consisting of the amount of time from each data point till the known failure.

Click the button to build a new model from the home screen or using the orange button on the top menu

+ Build a New Model

Step 1: Select Get Started under Value

CHOOSE MODEL PICK TARGET ADD DRIVERS GET RESULTS

Let's play with some data.
What type of model are you looking to analyze?

Event
I want to see how likely is a future event going to occur.
GET STARTED

Value
I want to project the future value of a series.
GET STARTED

Grouping
I want to explore patterns to group like items.
COMING SOON

Outlier
I want to find the positive and negative outliers from the norm.
GET STARTED

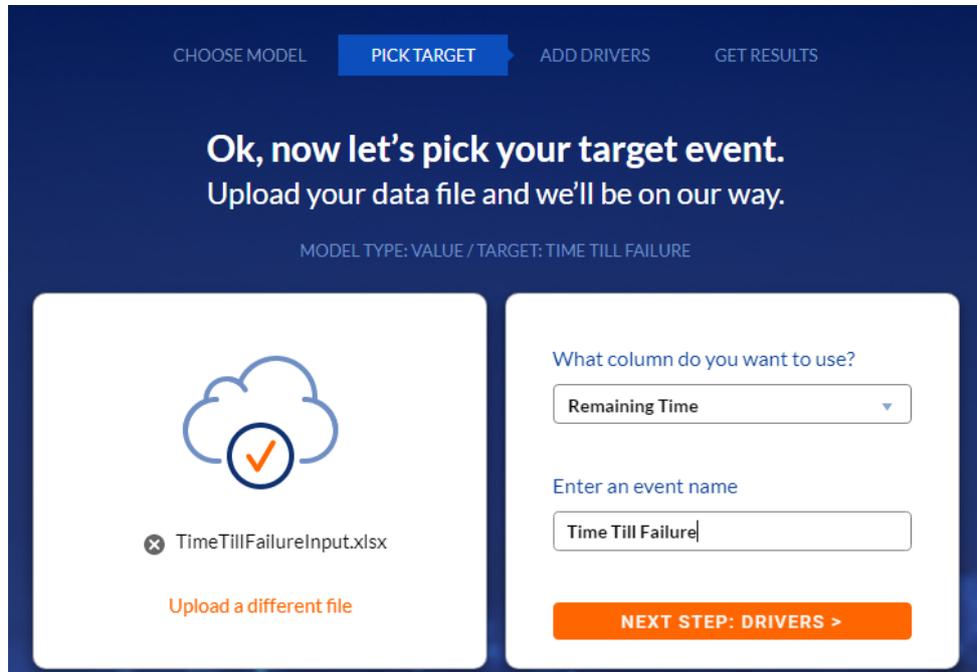
For the use case of predicting Time Till Failure, we will be building a model to predict a Value as we are trying to predict the number of hours until the system fails. As a result, click Get Started under the Value section

APPROACHABLE AI FOR IIOT

WWW.ELIPSA.AI

CREATE MODEL: PREDICTIVE MAINTENANCE

Step 2: Upload Data and Select Target



The screenshot shows a dark blue interface with a progress bar at the top containing four steps: 'CHOOSE MODEL', 'PICK TARGET' (highlighted in blue), 'ADD DRIVERS', and 'GET RESULTS'. The main heading reads 'Ok, now let's pick your target event. Upload your data file and we'll be on our way.' Below this, it specifies 'MODEL TYPE: VALUE / TARGET: TIME TILL FAILURE'. The interface is split into two white panels. The left panel features a cloud icon with a checkmark and a file named 'TimeTillFailureInput.xlsx' with a close button. Below the file name is a link 'Upload a different file'. The right panel has a dropdown menu labeled 'What column do you want to use?' with 'Remaining Time' selected. Below that is a text input field labeled 'Enter an event name' containing 'Time Till Failure'. At the bottom of the right panel is an orange button labeled 'NEXT STEP: DRIVERS >'. On the far left of the page, there is a decorative graphic consisting of blue and orange curved lines and a network of orange nodes connected by lines.

Upload File

Export your historical sensor data into csv format. Browse to the location of the file on your computer by clicking the button in the application or simply drag your file into the left hand size

Select the target column to predict

To build a Time Till Failure model, you must have historical records of machine failures. In our example, we have a column of the time between each timestamp and the next known failure. On the right-hand side, we will select this column in the dropdown as our target that we are looking to predict. Below the dropdown, enter the name that you want to use to describe the event that you are predicting.

Click Next Step: Drivers

CREATE MODEL: PREDICTIVE MAINTENANCE

Step 3: Select columns to use as predictors

The screenshot shows a web interface for creating a predictive maintenance model. The main heading is "Which columns are we going to use as predictors?". Below this, it specifies "MODEL TYPE: VALUE / TARGET: TIME TILL FAILURE". The interface is divided into two main panes: "Columns" on the left and "Predictors" on the right. The "Columns" pane has a "Select all" checkbox and a "Deselect all" checkbox. The "Predictors" pane has a "Reset" button. The "Columns" list includes: index, time_in_cycles (checked), unit_number, setting_1 (checked), TRA (checked), T2 (checked), T24 (checked), T30 (checked), T50 (checked), P2 (checked), P15 (checked), P30 (checked), and Nf (checked). The "Predictors" list includes: setting_1, TRA, T2, T24, T30, T50, P2, P15, and P30. A "Driver count: 21" is displayed at the bottom right of the predictors list. A large orange button labeled "CREATE MY MODEL!" is at the bottom center.

In this step, you will select the columns from your input file that you want to use to predict your target. In other words, select the columns that will predict your time remaining until failure.

In many cases, you will want to select all columns that you exported. You can easily do this with the select all button on the left pane. All selected columns will appear in the right pane and can be removed by clicking the X icon on the right or toggling the checkbox on the left.

Note that often times when using machine data the data is in a time series. Be careful about including date and time columns as predictors as you will be specifying to the system that the time till failure depends not just on sensor readings but also on the date or time of day which is generally not the case. Our suggestion is to avoid including date/time as predictors for most use cases.

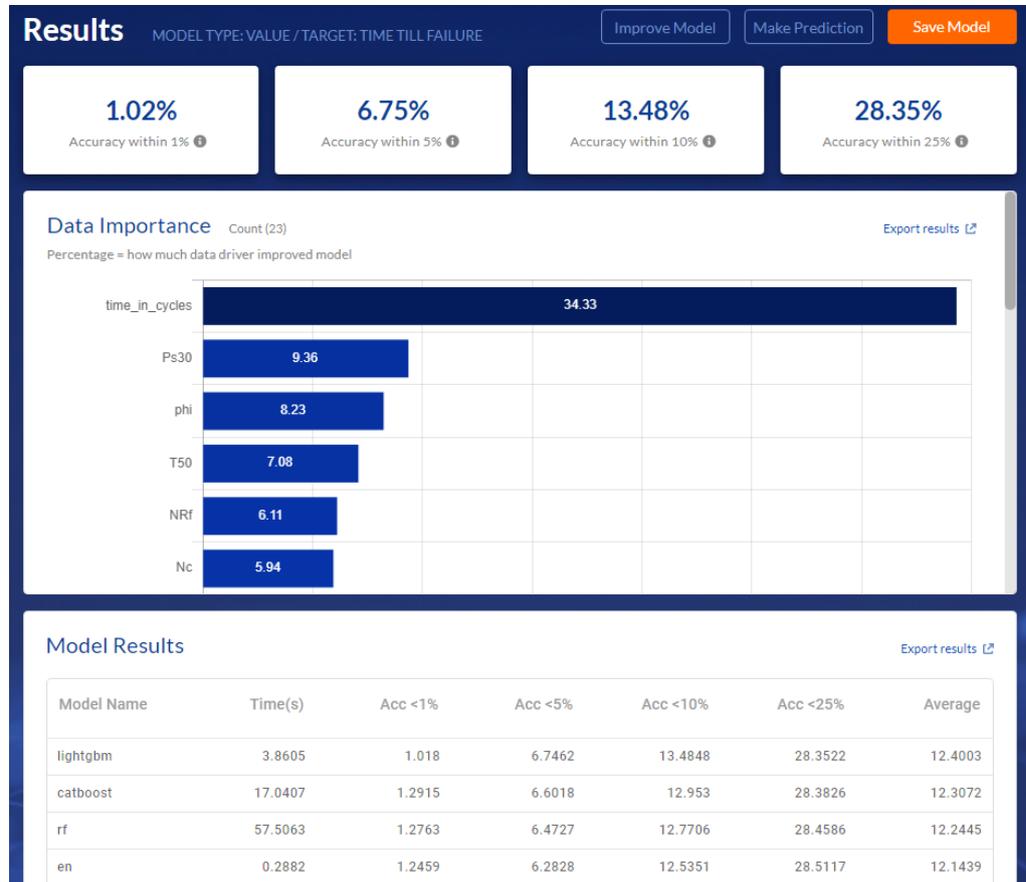
Click Create Model

APPROACHABLE AI FOR IIOT

WWW.ELIPSA.AI

CREATE MODEL: PREDICTIVE MAINTENANCE

Step 4: Review and Save Model



Once the model is built, the system will return metrics to help you better understand your model. For more information on the metrics, please look at the guides related to Model Metrics.

At this point in the process, there are options as to what you can do with the model. These options can be performed by the three buttons at the top right.

Click to Improve Model

First, you can click to Improve the Model. By clicking this, the system will take the best performing model and it will try to further improve it by trying a series of different configurations to see if it results in higher prediction accuracy. This process is known as model tuning.

CREATE MODEL: PREDICTIVE MAINTENANCE

Click to Make Predictions

In addition, you can click to Make Predictions in the user interface. This allows you to try to make predictions on new data through the UI. You will not be able to make predictions via API until the model is saved. For more information on predictions, please check out our guides.

Click to Save Model

By clicking save model, you are saving the model for future predictions in the system as well as via API. Unsaved models are only retained in the system for 24 hours.

