# Machine Running Times ‘Year in Review’

## Background

* Prima Power collects data from customer devices to show when the device is running. This data is currently used in various analysis tools to find and resolve problems by the Prima Power employees.
* Facebook in the past has created automated videos showing highlights of the users history. The idea of the videos was to show the user how they have interacted with other users but rather than excel sheets of data, the data is shown in a more fun and engaging way. As this is automated, it had hit or miss results.

## Basic Concept

Using the idea from facebook, the customer device run times data for a year period should be used to create an engaging visual highlight reel showing positive statistics. There is two parts to be addressed:

1. Determine if the data has any highlights to show and what those highlights are.
2. Create an application/program which automates the creation of visual highlights. Rather than a video with photographs etc as in the Facebook examples, a series of data visualizations for example charts could be shown. The amcharts javascript library has some good examples of how this can be done.

## Highlight Examples

* Total run hours of year is greater than total run hours of previous year
* Total run hours of last quarter is greater than total run hours of third quarter
* Most run hours of a single day (the date with the most run hours)
* Most run hours per day of the week ( eg Wednesdays have more run hours on average than other days)
* Most productive time of day ( 2pm-3pm )
* Most productive time of day and day of week (2pm-3pm on a Wednesday)

## Useful Links

### Facebook automated video examples

* <https://www.facebook.com/year.in.review.2019.videos/videos/2170488053217773>
* <https://www.youtube.com/watch?v=b3PBN3zC4M0>

### Am charts all chart demos

* <https://www.amcharts.com/demos-v4/>

### Am charts demos shown in zoom meeting

* <https://www.amcharts.com/demos-v4/bubble-based-heat-map-v4/>
* https://www.amcharts.com/demos-v4/bars-with-moving-bullets-v4/

### Am charts animation demos

* https://css-tricks.com/making-movies-with-amcharts/  
  <https://codepen.io/amcharts/pen/RNxrqo>  
  https://www.amcharts.com/demos-v4/map-line-chart-gauge-v4/  
  https://www.amcharts.com/demos-v4/corona-virus-animated-dashboard-v4/