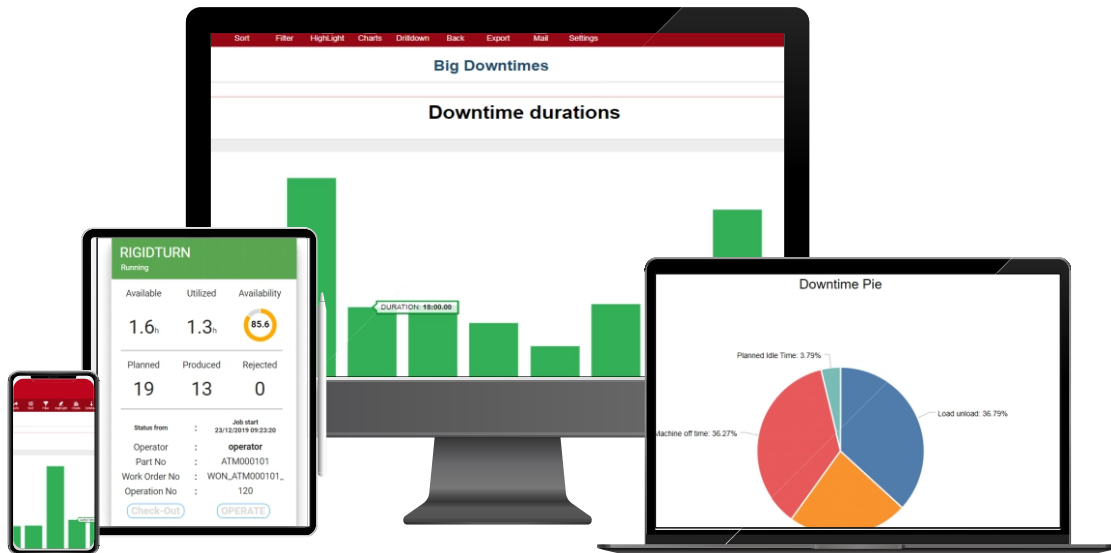




Marshall Industry 4.0 Solutions



SmartFAC-Universal

Cloud based Universal Machine Monitoring technology
with optional *Predictive Maintenance Module!*

TRANSFORM your Machine Shops with 'Data Driven Manufacturing':

- Detailed OEE Reports with Downtime analysis
- 24x7 system generated Alerts and Notifications
- Insights for process improvements

Tamperproof

Reliability of
Data & Robust
architecture

Universal
application

Maintenance
Free

Plug & Play

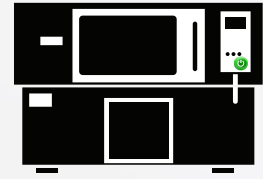
PROBLEMS



Inaccurate
Manual Data



No 'Real Time'
Machine Monitoring



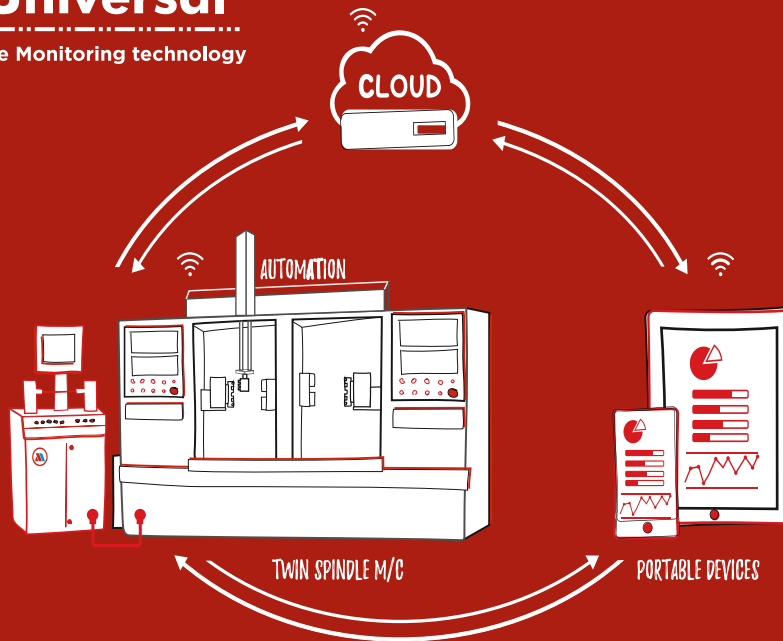
Unscheduled Stoppages
& Poor Productivity



SOLUTION

SmartFAC-Universal

Cloud based Universal Machine Monitoring technology



RESULTS



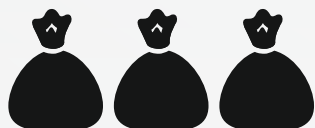
18%

Increase in
Productivity



99%

Data
Accuracy



3

Months
Return on
Investment

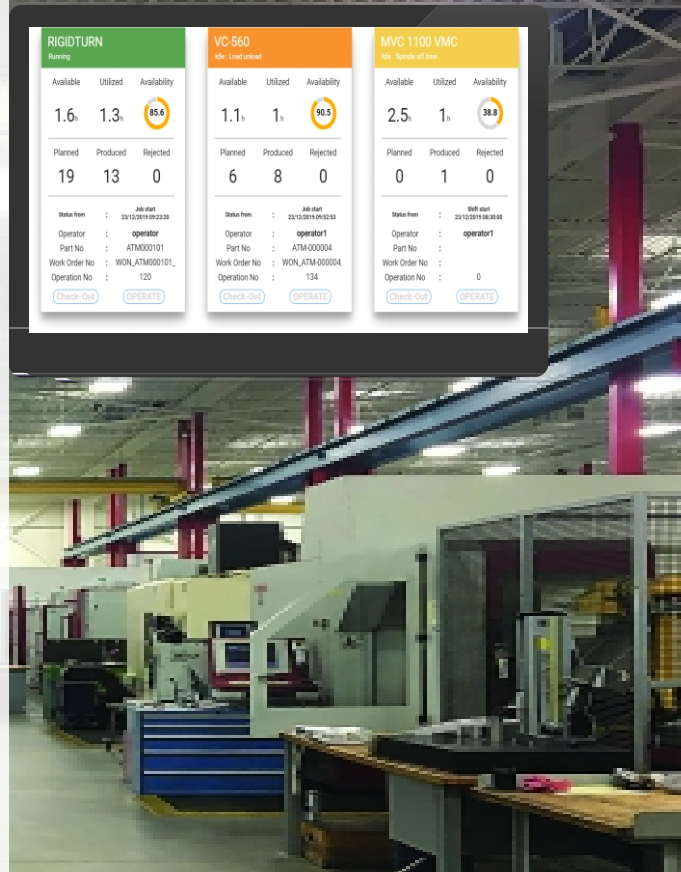


30%

Reduction in
accidents & tool
breakage in
Night Shift

Easy to Install & Use... Amazing Results

SmartFAC- Universal is a cloud-based universal machine monitoring technology that gives users the ability to track OEE in real-time, identify problems, implement solutions and then measure the effects of the improvements. For machine shops, installing wireless GSM/Web-enabled SmartFAC-Universal is the first step in Industry 4.0 implementation. Using SmartFAC-Universal, manufacturers can bring 'Data Driven Manufacturing' to their shop floors with hardware & software that is easy to install, easy to use and one that produces amazing results. It is Universal because it can be installed on any machine (CNC or non-CNC) of any make or age, including presses, bandsaws, injection moulding, etc.



Autonomous Alerts & Notifications

Manufacturers can set limits/thresholds for various parameters being measured and SmartFAC-Universal sends SMS or Email alerts to designated managers if any limit is crossed. This ensures that performance of machines is being monitored 24x7 without any human beings required to watch them or gather data.

Detailed Production Analysis

The driver of Data Driven Manufacturing is Data Analysis that gives insights for improvement. SmartFAC-Universal provides in depth information of each connected machine as desired, i.e. hourly, shift wise, or over a period of days, weeks. Information includes Availability (A), Performance (P), OEE (Overall Equipment Efficiency), Utilization and composition of downtime. This provides basis for initiating actions which lead to improvements.

Data		Hour-wise production												Actual Qty	
Machine name	Time slice	Start date	Hour 1	Hour 2	Hour 3	Hour 4	Hour 5	Hour 6	Hour 7	Hour 8	Hour 9	Hour 10	Hour 11	Hour 12	Actual Qty
Machine name=FORTIUS															
FORTIUS	Shift 1	19-11-2019 07:00:00 AM	9	7	53	57	33	45	17	16	29	25	49	19	350
FORTIUS	Shift 2	19-11-2019 07:00:00 PM	44	41	44	36	52	50	54	41	9	0	0	0	362
FORTIUS	Shift 1	19-11-2019 07:00:00 AM	0	0	0	15	0	0	0	0	0	0	0	0	15
FORTIUS	Shift 2	19-11-2019 07:00:00 PM	0	0	0	0	0	1	54	34	16	0	0	0	105
FORTIUS	Shift 1	20-11-2019 07:00:00 AM	13	21	34	44	22	30	31	37	1	0	0	0	233
FORTIUS	Shift 2	20-11-2019 07:00:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
FORTIUS	Shift 1	21-11-2019 07:00:00 AM	16	23	46	30	28	35	10	25	35	35	44	13	340
FORTIUS	Shift 2	21-11-2019 07:00:00 PM	54	65	65	47	74	60	3	0	0	0	0	0	368
FORTIUS	Shift 1	22-11-2019 07:00:00 AM	16	28	59	47	59	69	36	50	10	0	0	0	372
FORTIUS	Shift 2	22-11-2019 07:00:00 PM	27	65	57	40	47	36	2	45	23	0	0	0	342
FORTIUS	Shift 1	23-11-2019 07:00:00 AM	20	4	27	43	66	45	13	49	57	35	18	17	394
FORTIUS	Shift 2	23-11-2019 07:00:00 PM	14	0	0	0	0	0	0	0	0	0	0	0	14
															2895



Simple Installation

SmartFAC-Universal is a plug & play solution that is installed in 'Minutes' through an IoT Box (fitted to any machine, CNC or non-CNC) that transmits data to secure cloud (Microsoft Azure) which then sends reports & notifications to any web-enabled devices of your choice.

SmartPAD 4.0

A unique feature of SmartFAC-Universal is operator data input through a 4 button pad (Marshall's patent applied SmartPAD 4.0). This robust, shopfloor-friendly device enables accurate basic information about machine operation to be inputted by operator with details filled in by supervisor/engineer.

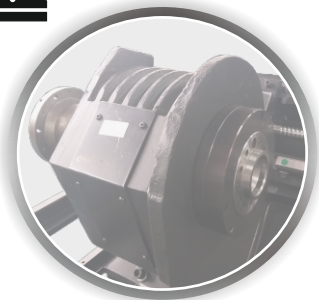


Option of SmartPredict (Predictive Maintenance Module)

Predictive maintenance is the best way to predict & solve machine problems to prevent breakdowns. Marshall's SmartPredict module with vibration, temperature, flow & pressure sensors can be integrated with SmartFAC-Universal to monitor health & provide alerts.



Vibrations



Temperature



Flow Rate



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