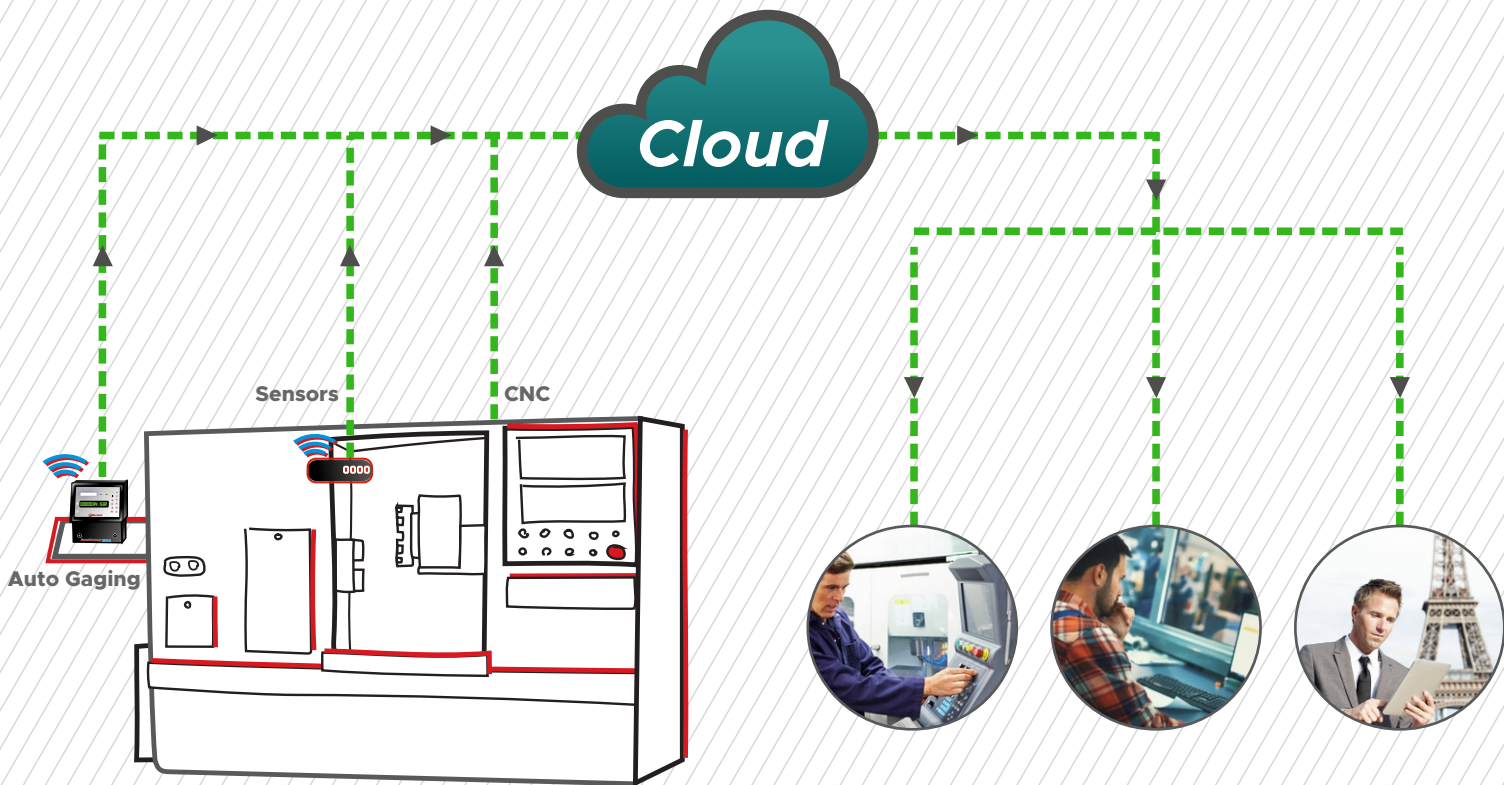


Unskilled Person Operable Machines



The #1 PROBLEM of Machine Shops

- Skilled workers were already in shortage before COVID. Now many have gone home.
- Replacement for 'Skilled Operator' Ram Prasad is Chandu, eager to work but unskilled.
- Despite giving training to Chandu, Rejection jumps from 0.5% to 2.5% and employers also spend more time physically monitoring his performance to ensure that productivity does not drop.

Problem:
How to get better Quality & Productivity from Chandu!

The Solution



- UPM is Unskilled Person Operable Machine. Can be operated by Chandu.
- It is a high performance (super-optimized machine) which gives 20% extra output because of higher cutting & non-Cutting Parameters.
- It has 'Smart' Industry 4.0 Technologies embedded in it to ensure BETTER performance by Chandu than skilled operator Ram Prasad in:

Quality

Productivity

Machine Health



Pre-installed Industry 4.0 Technology #1

for PRODUCTIVITY

SmartFAC-Universal

- Marshall's unique machine monitoring technology (Cloud or LAN based)
- Built in TAB for data entry
- Very easy user interface.
- PRODUCTIVITY monitored through reports & settable alerts.
- UNIQUE FEATURE: INSIGHTS to guide actions



Pre-installed Industry 4.0 Technology #2

for QUALITY

SmartCorrect ECO 1

Gauging Station with Auto-Correction

- SmartCorrect-ECO 1 is an economical auto-gauging station which checks one most important dimension of a job and auto-corrects the CNC to produce 'near ZERO' defectives from unskilled operator Chandu.
- Option of inspections & auto-correction of 2, 3, 4 sizes. (ECO 2/3 or 4)
- Input Air-Gauge measuring element (Plug for Bore & Snap for OD) or measuring fixture is provided by user.



Pre-installed Industry 4.0 Technology #3

for MACHINE HEALTH

Crash Detection & Predictive Maintenance Sensors.

- One of the biggest fears of machine shop owners & managers is that Chandu will make an error and cause accident and then not inform his seniors. The machine will continue working 'Internal Injuries' and this will lead to sudden failure a few weeks after.
- UPM comes with Marshall's patented MAIS (Machine Accident Information System) technology pre-installed.
- Vibration, Noise & Temperature sensors help in predictive maintenance of the most vital part of machine, i.e. Spindle Assembly.

uno (Single Spindle)

CAPACITY

Swing Over Bed (mm)	350
Maximum Turning Dia. (mm)	210
Maximum Turning Length (mm)	125
Stroke (mm)	300

MAIN SPINDLE

Spindle Nose (Standard)	A2-5
Front Bearing Bore (mm)	85
Maximum Bar Capacity (Std.) (mm)	38
(Optional) (mm)	42

SPINDLE DRIVE

Spindle Motor rated power (KW)	Fanuc 7.5/11	Siemens 9/12
Inf. Variable speed range (rpm)	100-4000	

RAPID TRAVERSE

STANDARD	
X-axis (m/min.)	24
Z-axis (m/min.)	24

POSITIONING REPEATABILITY

X-axis	± 1.5 Microns
Z-axis	± 2 Microns

CNC Controls: SIEMENS / FANUC 0iTF	4500
Weight (approx.) (Kg)	

RAPIDTURN SL-12(D) (Double Spindle)

CAPACITY

Swing Over Carriage Cover mm(In)	360 (14.17)
Maximum Turning Dia. mm(In)	200 (7.9")
Maximum Turning Length mm(In)	160 (6.30")
Maximum Boring Length mm(In)	150 (5.9")

SPINDLE

Chuck Size mm (In)	165 (6")
Spindle Speed (rpm)	6000
Motor (Max/Cont.) KW (HP)	15/11 (20/14.7")
Torque (Max/Cont.) N.m (lbf.ft)	95.5/70 (70.4/51.6")
Spindle Type	V-Ribbed Belt
Spindle Nose	A2-5

FEED

Travel (X / Z) mm(In)	500/180 (19.70/7")
Rapid Traverse Rate (X/Z) m/min(ipm)	36/36 (1.41"/1.41")
Slide Type	LM GUIDE

BLOCK TOOL

No. of Tools	8
Tool Size OD mm(In)	25 (1")
Tool Size ID mm(In)	32 (1.2")

TANK CAPACITY

Coolant Tank	120 (31.7)
Lubricating Tank	1.8 (0.5)

MACHINE

Floor Space (L x W)	2,160 x 1,600 (85" x 63")
Height mm (In)	2,200 (86.61")
Weight Kg. (lbs)	4000 (8818 lbs)

NC Controller	SIEMENS 828D / FANUC 0iTF
---------------	---------------------------



Models with Tool Turret & Tailstock

SMARTER



CAPACITY

Swing Over Bed	Ø 450 mm
Max.Turning Diameter	Ø 250 mm
Max.Turning Length	330 mm

MAIN SPINDLE

Spindle Nose	A2-5
Spindle Bore	50 mm
Max. Bar Capacity	38 mm

SPINDLE SPINDLE

Spindle Motor	SIEMENS	9/11 KW
	FANUC	7.5/11 KW
Spindle Range		50-5500 RPM

RAPID TRAVERSE

X- Z Axis	30 m/min
-----------	----------

TAILSTOCK

TAPER IN QUILL	MT-4
ADJUSTABLE THRUST	600

TOOL TURRET

Nos. Of Stations	8-Stations
Tools Cross Section	25x25

POSITIONING REPEATABILITY

X-Axis	± 1 Microns
Z-Axis	± 2.0 Microns

FORTIUS



CAPACITY

Swing Over Bed	Ø 500 mm
Max.Turning Diameter	Ø 300 mm
Max.Turning Length	500 mm

MAIN SPINDLE

Spindle Nose	A2-6
Spindle Bore	65 mm
Max. Bar Capacity	45 mm

SPINDLE SPINDLE

Spindle Motor	SIEMENS	9/11 KW (12/16 KW OPT.)
	FANUC	7.5/11 KW (11/15 KW OPT.)
Spindle Range		50-4000 RPM

RAPID TRAVERSE

X- Z Axis	30 m/min
-----------	----------

TAILSTOCK

Taper In Quill	MT-4
Adjustable Thrust	600

TOOL TURRET

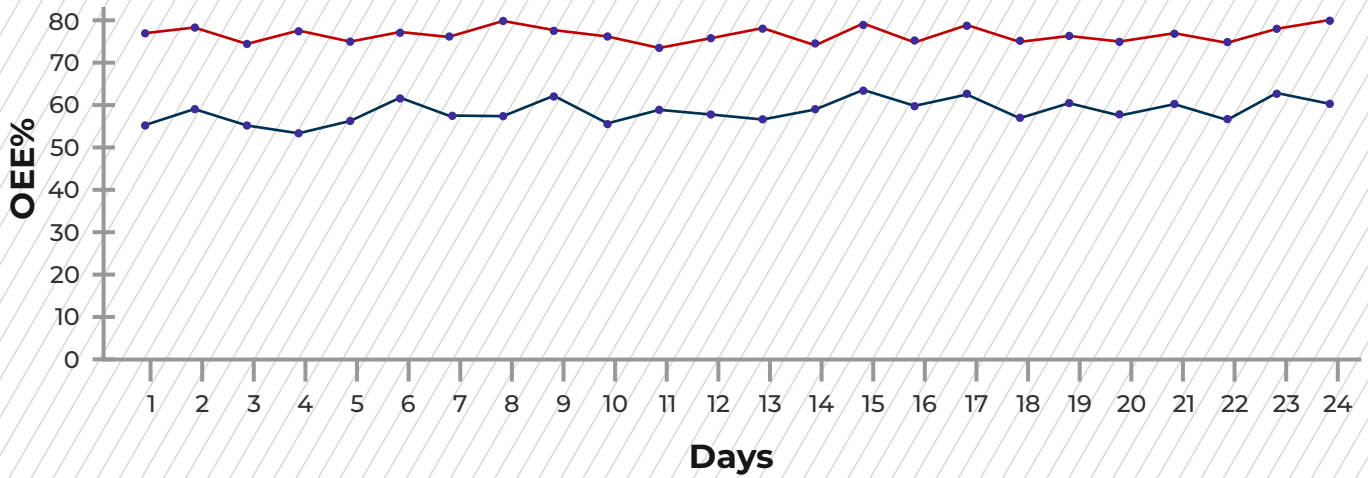
Nos. Of Stations	8-Stations
Tools Cross Section	25x25

POSITIONING REPEATABILITY

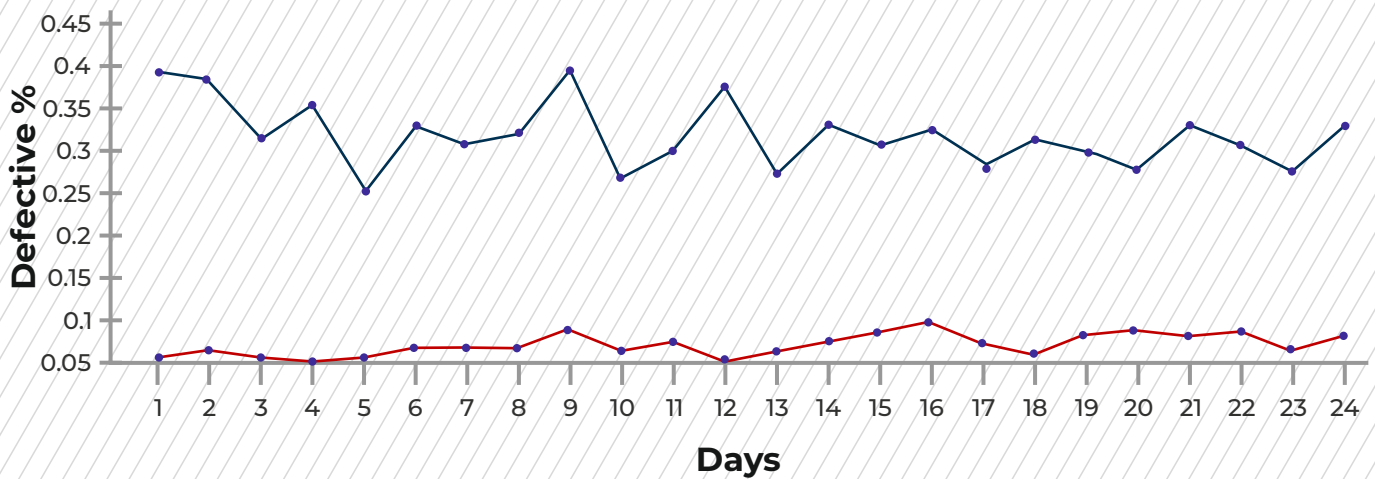
X-Axis	± 1 Microns
Z-Axis	± 2.0 Microns
L X W X H	2400x1600x1700

Productivity Jump

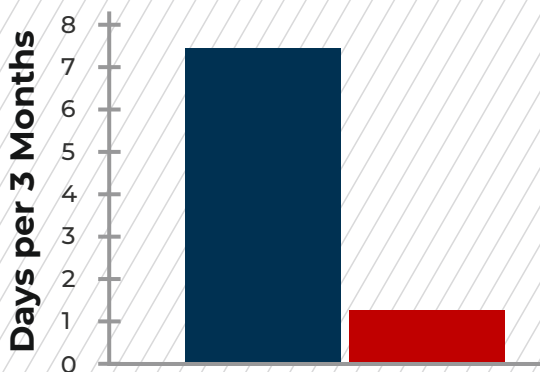
■ Ram Prasad ■ Chandu



Quality Jump



Days Lost due to mech breakdowns



Marshall Machines Ltd.
 Head Office & Works
 C 86, Phase-V, Focal Point, Ludhiana 141 010 India
 Phone: +91 161 5012406, 5012407, 5019648
 Email: headoffice@marshallcnc.com
 Automated Solutions Division (Unit II)
 D-116A, Phase-V, Focal Point, Ludhiana-141010. INDIA
 marshallcnc.com marshallcnc.in



Marshall Automation America, Inc.
 Smart CNC Automation & Gauging Solutions
 Office & Technology Center
 Suite #23, 2885 North Berkeley Lake Road, NW, Duluth
 Georgia 30096 (USA) Phone: 404-394-6678
 info@marshallautomationamerica.com
 www.marshallautomationamerica.com