

**JD GRAY ASSOCIATES
MANUFACTURING PRODUCTIVITY CONSULTANTS**

THINKING ABOUT RETURNING YOUR ASSEMBLY WORK FROM CHINA?

KEEP IT IN THE USA!!!

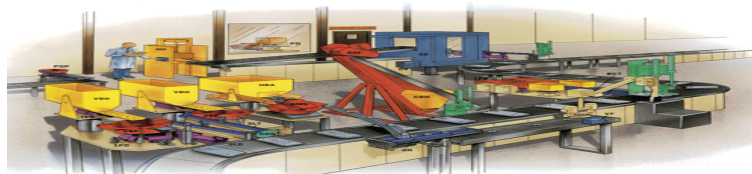
ALLOW US TO MODERNIZE YOUR OPERATION AND WE WILL OFFER

GUARANTEED SAVINGS!

SEMI-AUTOMATION PROPOSAL

IN

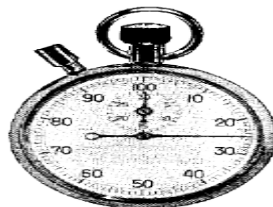
PRODUCT AUTOMATION



MATERIALS HANDLING

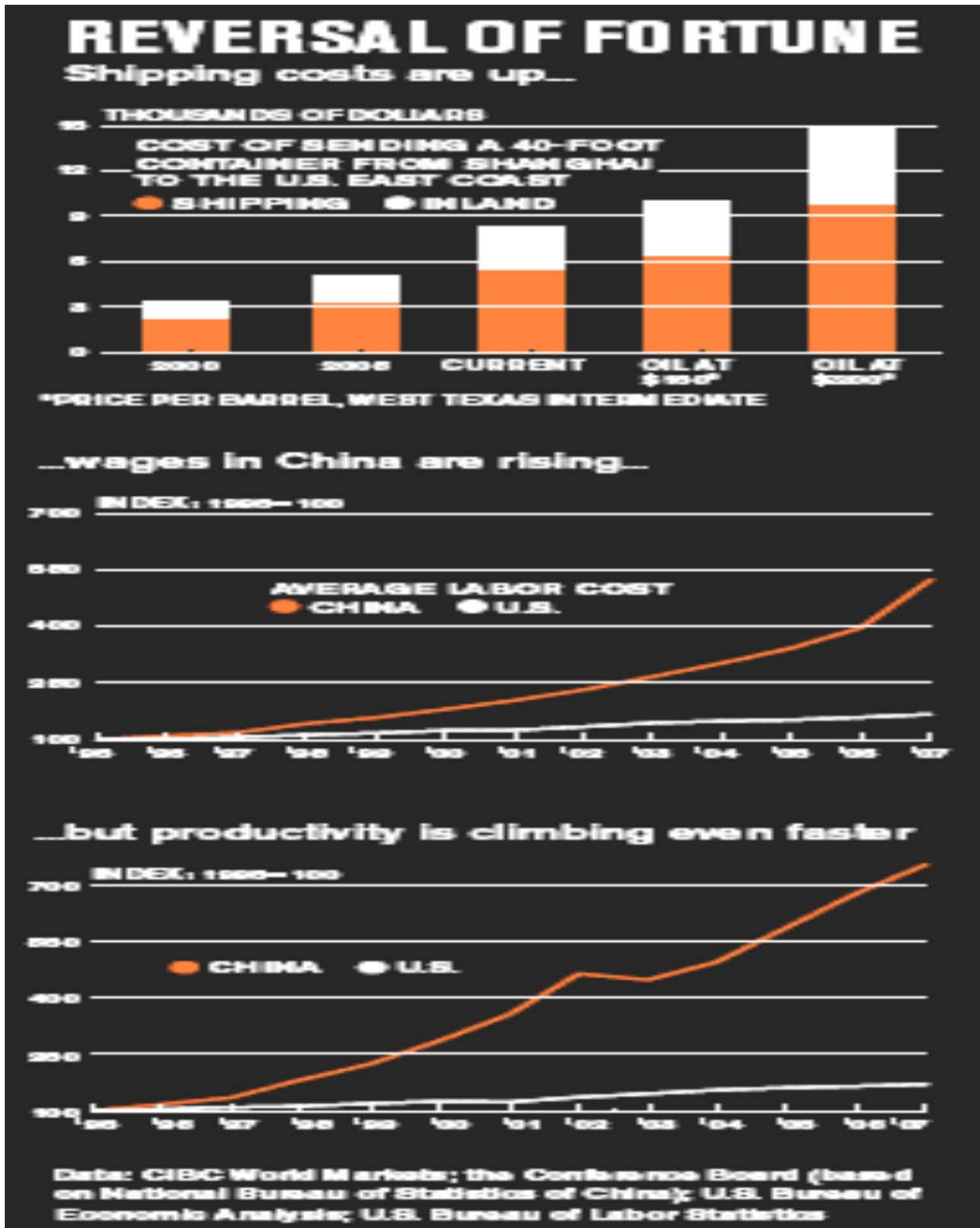


DIRECT LABOR CONTROLS



**PO BOX 63 SUMMIT HILL, PENNSYLVANIA 18250 USA
P (484) 274-2851 F (484) 294-2333
jdgrayassociates@yahoo.com www.jdgray-associates.com**

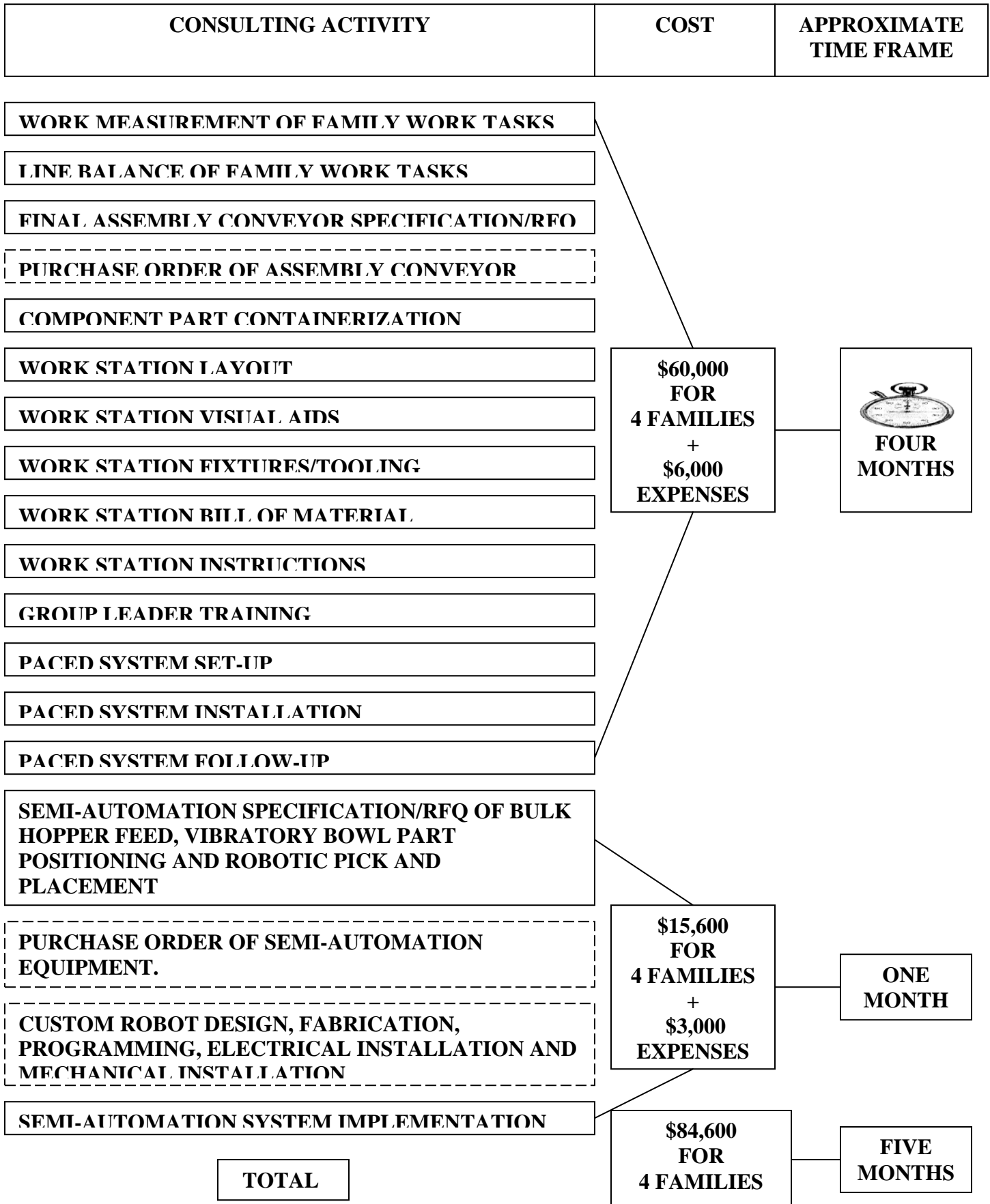
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**WE WILL INCREASE YOUR USA PRODUCTIVITY
BETWEEN 55% TO 75%**

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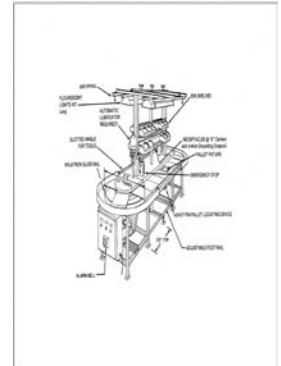
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EQUIPMENT - PRECISION INDEXING EXPANDABLE ASSEMBLY CONVEYOR FOR 4 FAMILIES	COST	APPROXIMATE TIME FRAME
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- **Standard Rotary Assembly Conveyor Model 2424, 22' 6" OL, 18 pallets, 6 pallets/side (3 pallets on each end), Variable Dwell time, 3 operator/side with 4 supports.....\$34,139**
 - **Standard Rotary Options. Variable speed indexing, fluorescent lighting fixtures, electrical outlets beneath pallet for six operators, upper supports to support lighting fixtures, pneumatic quick disconnect with air piping for six operators, tool tray railing, overhead rail with trolleys for six operators.....\$10,201**
 - **Standard Rotary Precision Pallet Locating System for One Work Cell. 1 shot pin locating device and 18 pallet shot pin blocks..... \$8,815**
- NOTE: ADD'L COST REQUIRED FOR ROTARY CONVEYOR OVER 6 STATIONS**



FOUR MONTHS

EQUIPMENT- TYPICAL ROBOTIC WORK CELLS FOR 4 FAMILIES	COST	APPROXIMATE TIME FRAME
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- LOAD/INSERT COMMON COMPONENTS (i.e. Screws) INTO ASSEMBLY IN FIXTURE ON ROTARY PALLET.....\$150,000 (BUDGET)**
- **Vibratory Feed Bowl and Inline Track**
 - **Multi-Axis-Servo**
 - **Multi-End-Effector**
 - **Rotary Conveyor Pallet Synchronous Loader**
 - **PLC Controlled**
- UNLOAD ASSEMBLY FROM FIXTURE INTO CARTON.....\$100,000 (BUDGET)**
- **Multi-Axis-Servo**
 - **Multi-End-Effector**
 - **Rotary Conveyor Pallet Synchronous Unloader**
 - **PLC Controlled**
- CARTON SIDE FORMING, SEAL AND TAPE.....\$150,000 (BUDGET)**
- **Fully Automatic Case Former with Hot Melt Glue Bottom Case Sealer**
 - **Hot Melt Glue Top Case Sealer**
 - **Top and Bottom Pressure Sensitive Case Taper**
 - **Intermediate Case-Transport Powered Conveyor**



FOUR MONTHS

TOTAL

**\$453,155
FOR 4
FAMILIES**

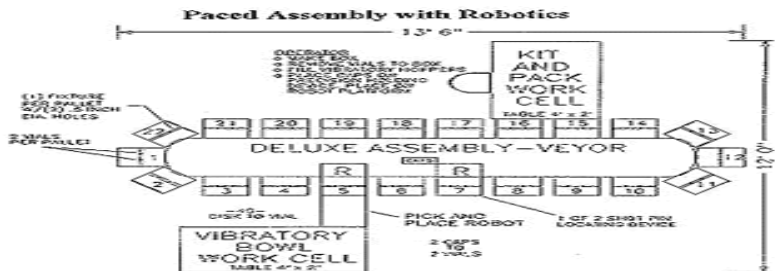
EIGHT MONTHS

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SEMI-AUTOMATION SAVINGS MILESTONES

PACED ASSEMBLY ONLY	ROBOTIC WORK CELLS
PHASE ONE	PHASE TWO
(4 MONTHS)	(1 MONTH)
4 MONTHS	4 MONTHS
25% to 40%	30% to 35%
GRAND TOTAL SAVINGS	
55% TO 75%	

\$66,000	-	CONSULTING FEE WITH	-	\$18,600
		USA EXPENSES ON 4 FAMILIES		
\$53,155	-	ROTARY ASSEMBLY CONVEYOR		
		TYPICAL ROBOTIC WORK CELLS	-	\$400,000
\$119,155	-	SUB TOTAL COST	-	\$418,600
		GRAND TOTAL COST WITH	-	\$537,755
		PACED ASSEMBLY AND		
		ROBOTIC WORK CELLS		



SEMI-AUTOMATION OF ROUND DISK VIAL FILLING AND PACKAGING SYSTEM

8.9 MONTHS - TYPICAL USA PAYBACK BASED ON - 21.5 MONTHS
20 EXISTING OPERATORS
@ \$10 PER HOUR