

CASE STUDY – Scanning (Groceries) / Tendering Money

TASK TITLE: Scanning (Groceries) / Tendering Money

<p>Task Description:</p>	<p>The Scanning (Groceries) / Tendering Money task may be involved when working in a deli, convenience store or commissary. The tasks involve entering information using a keypad or scanner, handling money and individual items.</p> <p>Typical jobs in which Scanning (Groceries) / Tendering Money tasks are performed include (but are not necessarily limited to):</p> <ul style="list-style-type: none"> • Commissary • Convenience store • Restaurant
<p>Job Performance Measures Most Often Impacted by Scanning (Groceries) / Tendering Money:</p>	<ul style="list-style-type: none"> • Scanning accuracy • Money collection accuracy
<p>Typical Employee Comments about Scanning (Groceries) / Tendering Money:</p>	<p>Employees typically experience discomfort in the shoulder/neck and hands/wrists/arms, which can be attributed to moving items across scanner.</p> <p>The shoulder/arms and hands/wrists/arms are the body areas that most commonly receive a “High” priority rating. The remaining areas, with the exception of the head/eyes, are more likely to receive a “Medium” priority rating, or lower.</p>
<p>Suggested Level II Analysis:</p>	<p>Elemental Task Analysis</p>

Shoulder/Neck

Job Factor	Potential Causes	Corrective Action	Level of Changes		Cost	Impact On	
			✓ Minor Modification	✓ Major Change		Quality	Productivity
1. Reaching	<ul style="list-style-type: none"> Object is too high 	32. Lower the work piece / work surface		✓	low to high	med	med
		<ul style="list-style-type: none"> place the keypad on a height and angle adjustable pedestal so that the keypad is shoulder height or lower but does not interfere with the flow of groceries 					
		123. Raise the person	✓		low	low	low
		<ul style="list-style-type: none"> provide a platform or stand 					
1. Reaching	<ul style="list-style-type: none"> Object is too far away 	13. Encourage ergonomic work techniques					
		<ul style="list-style-type: none"> instruct individuals to use the conveyor belt to bring groceries as close to the body as possible prior to lifting and handling the grocery item 	✓		low	low	low
		41. Move work piece closer to body					
		<ul style="list-style-type: none"> use a divertor guide to bring groceries close to cashier. The divertor pushes groceries towards the cashier side of the counter as the conveyor moves forward. 		✓	low to med	low	Med



Shoulder/Neck (cont'd)

Job Factor	Potential Causes	Corrective Action	Level of Changes		Cost	Impact On	
			✓ Minor Modification	✓ Major Change		Quality	Productivity
2. Arm forces: Repeated arm forces or holding / carrying materials	<ul style="list-style-type: none"> • Raised lip on front of scanner prevents products from sliding 	35. Maintain tracks, rollers and movement mechanisms	✓		low	high	high
		<ul style="list-style-type: none"> • adjust conveyor belt and scanner to ensure a smooth transition. • clean and maintain scanner on a regular basis 	✓		low	high	high
	<ul style="list-style-type: none"> • Person lifts item for scanning 	148. Provide appropriate equipment		✓	high	high	high
		<ul style="list-style-type: none"> • provide a scanner which can scan bar codes in different orientations 	13. Encourage ergonomic work techniques				
		<ul style="list-style-type: none"> • encourage person to slide items rather than lifting them, (assumes high quality scanner) 	✓		low	med	med

Shoulder/Neck (cont'd)

Job Factor	Potential Causes	Corrective Action	Level of Changes		Cost	Impact On	
			✓ Minor Modification	✓ Major Change		Quality	Productivity
3. High speed, sudden shoulder movements	• Speed of lift	13. Encourage ergonomic work techniques					
		• encourage person to use smooth fluid movements while handling items.	✓		low	low	low
		• encourage person to use smooth fluid movements to move grocery items across scanner	✓		low	low	low
		41. Move work piece closer to body					
		• use a divertor guide to bring groceries close to cashier. The divertor pushes groceries towards the cashier side of the counter as the conveyor moves forward, thus sudden shoulder movements are not required to bring the item to the cashier.		✓	low to med	low	Med

Shoulder/Neck (cont'd)

Job Factor	Potential Causes	Corrective Action	Level of Changes		Cost	Impact On	
			✓ Minor Modification	✓ Major Change		Quality	Productivity
4. Head/neck bent or twisted	<ul style="list-style-type: none"> Work piece position too low and off to one side 	13. Encourage ergonomic work techniques <ul style="list-style-type: none"> encourage person to use conveyor belt to move item directly in front of the body and minimize turning the head to view items positioned away from the scanning area 	✓		low	low	low
		124. Raise the work piece / work surface <ul style="list-style-type: none"> position keypad on a height adjustable pedestal to raise the keypad to a position that does not require severe bending of the neck 		✓	high	med	med
		150.Re-design work space <ul style="list-style-type: none"> position keypad directly in behind and over the conveyor belt so that person can face the groceries on the conveyor rather than looking down and to the right 		✓	low to high	med	med

Hands/Wrists/Arms

Job Factor	Potential Causes	Corrective Action	Level of Changes		Cost	Impact On	
			✓ Minor Modification	✓ Major Change		Quality	Productivity
5. Bent wrists/repeated wrist movements or repeated forearm rotation	<ul style="list-style-type: none"> Shape of item causes awkward wrist positions  <ul style="list-style-type: none"> Height and angle of keypad causes awkward wrist positions Raised lip on front of scanner prevents products from sliding 	<p>13. Encourage ergonomic work techniques</p> <ul style="list-style-type: none"> encourage individual to allow the conveyor to bring the object to the scanner or weight scale use to hands to lift heavy awkward items <p>149. Provide appropriate tools</p> <ul style="list-style-type: none"> investigate the use of a hand held scanner or scanner than can be adjusted to allow the individual to avoid handling the item <p>20. Incorporate rest pauses</p> <p>152. Relocate the work</p> <ul style="list-style-type: none"> position keypad on a height and angle adjustable pedestal to improve wrist posture. <p>35. Maintain tracks, rollers, and movement mechanisms</p> <ul style="list-style-type: none"> adjust conveyor belt and scanner to ensure a smooth transition. clean and maintain scanner on a regular basis 	✓		low	low	low
			✓		low	low	low
				✓	med to high	med	med
			✓		low	low	low
				✓	low to med	med	med
			✓		low	high	high
	✓	low	high	high			

Hands/Wrists/Arms (cont'd)

Job Factor	Potential Causes	Corrective Action	Level of Changes		Cost	Impact On	
			✓ Minor Modification	✓ Major Change		Quality	Productivity
	<ul style="list-style-type: none"> Person lifts item for scanning 	148. Provide appropriate equipment <ul style="list-style-type: none"> provide a scanner which can scan bar codes in different orientations 13. Encourage ergonomic work techniques <ul style="list-style-type: none"> encourage person to slide items rather than lifting them (assumes high quality scanner) 		✓	med to high	high	high
			✓		low	med	med
6. Repeated manipulations with fingers	<ul style="list-style-type: none"> Keying information into the keypad causes repeated finger manipulations 	13. Encourage ergonomic work techniques <ul style="list-style-type: none"> encourage individual to use scanner whenever possible to enter product information 11. Eliminate unnecessary tasks	✓		low	low	low
				✓	high	med	high

Hands/Wrists/Arms (cont'd)

Job Factor	Potential Causes	Corrective Action	Level of Changes		Cost	Impact On	
			✓ Minor Modification	✓ Major Change		Quality	Productivity
7. Hyper-extension of finger/thumb or repeated single finger activation	<ul style="list-style-type: none"> Item is difficult to grasp 	13. Encourage ergonomic work techniques <ul style="list-style-type: none"> push instead of grab and lift use two hands to lift heavy or awkward items 11. Eliminate unnecessary tasks <ul style="list-style-type: none"> implement an advanced checkout system that has clients scan and process their own items 	<ul style="list-style-type: none"> ✓ ✓ 	<ul style="list-style-type: none"> ✓ 	low low high	med low high	med low high
8. Hand/grip forces	<ul style="list-style-type: none"> Item is difficult to grasp Item has no handles Raised lip on front of scanner prevents products from sliding 	13. Encourage ergonomic work techniques <ul style="list-style-type: none"> encourage the use of the conveyor to transport items as close to the individual as possible use two hands to lift heavy or awkward items leave heavy items in the grocery cart 35. Maintain tracks, rollers, and movement mechanisms <ul style="list-style-type: none"> adjust conveyor belt and scanner to ensure a smooth transition. clean and maintain scanner on a regular basis 	<ul style="list-style-type: none"> ✓ ✓ ✓ 	<ul style="list-style-type: none"> ✓ ✓ 	low low low low low	low low low high high	low low low high high

Hands/Wrists/Arms (cont'd)

Job Factor	Potential Causes	Corrective Action	Level of Changes		Cost	Impact On	
			✓ Minor Modification	✓ Major Change		Quality	Productivity
	<ul style="list-style-type: none"> Person lifts item for scanning 	148. Provide appropriate equipment <ul style="list-style-type: none"> provide a scanner which can scan bar codes in different orientations 		✓	high	high	high
9. High speed hand/wrist/arm movements or vibration, impact or torque to the hand	<ul style="list-style-type: none"> Scanning groceries 	13. Encourage ergonomic work techniques <ul style="list-style-type: none"> encourage person to slide items rather than lifting them, (assumes high quality scanner) 	✓		low	med	med
		11. Eliminate unnecessary tasks <ul style="list-style-type: none"> implement an advanced checkout system that has clients scan and process their own items 		✓	high	high	high
10. Exposure to hard edges	<ul style="list-style-type: none"> Rarely occurs 	N/A					
11. Hands and fingers exposed to cold temperatures	<ul style="list-style-type: none"> Rarely occurs - handling of frozen goods is too low to be considered an exposure 	N/A					

Back/Torso

Job Factor	Potential Causes	Corrective Action	Level of Changes		Cost	Impact On	
			✓ Minor Modification	✓ Major Change		Quality	Productivity
12. Repeated forward or sideways bending movements	<ul style="list-style-type: none"> Object is too low 	124. Raise the work piece/work surface <ul style="list-style-type: none"> raise conveyor 		✓	high	med	med
	<ul style="list-style-type: none"> Object is too far away 	38. Move closer to the work location <ul style="list-style-type: none"> remove obstructions walk around the counter to handle items located in grocery carts 	✓ ✓		low low	low low	low low
		41. Move work piece closer to body <ul style="list-style-type: none"> use a divertor guide to bring groceries close to cashier, thus pushing groceries towards the cashier side of the counter as the conveyor moves forward. 		✓	low to med	low	med
	<ul style="list-style-type: none"> Lifting item out of a deep container causes awkward bending 	147. Provide an alternate container <ul style="list-style-type: none"> provide shallower grocery carts with detachable edges so that items can be slid out of the cart rather than lifted out of the cart 		✓	high	med	med

Back/Torso (cont'd)

Job Factor	Potential Causes	Corrective Action	Level of Changes		Cost	Impact On	
			✓ Minor Modification	✓ Major Change		Quality	Productivity
	<ul style="list-style-type: none"> Person tends to use the back to lift instead of using the legs to assist in the lift (Check to make sure that there is no contributing factor in the workplace) 	11. Eliminate unnecessary tasks <ul style="list-style-type: none"> place tags on heavy items or replace shelving of item with sample and tags. Scan the tag instead of the item. 13. Encourage ergonomic work techniques <ul style="list-style-type: none"> provide training on ergonomics principles and techniques encourage person to use leg muscles to lift 		✓	med to high	low	med
			✓		low	low	low
			✓		low	low	low
13. Twisting of the lower back	<ul style="list-style-type: none"> Access is restricted to items that need to be handled Person tends to twist with the back instead of using the legs and feet to pivot 	41. Move work piece closer to body <ul style="list-style-type: none"> use a divertor guide to bring groceries close to cashier. The divertor pushes groceries towards the cashier side of the counter as the conveyor moves forward. 13. Encourage ergonomic work techniques <ul style="list-style-type: none"> encourage person to use conveyor to bring item to them provide training on ergonomics principles encourage person to use legs to pivot when handling a load 		✓	low to med	low	med
			✓		low	low	low
			✓		low	low	low
			✓		low	low	low

Back/Torso (cont'd)

Job Factor	Potential Causes	Corrective Action	Level of Changes		Cost	Impact On	
			✓ Minor Modification	✓ Major Change		Quality	Productivity
14. High speed, sudden movements, or lifting awkward, uneven, shifting or bulky items	<ul style="list-style-type: none"> Person tends to lift with a jerky motion instead of a smooth motion 	13. Encourage ergonomic work techniques <ul style="list-style-type: none"> encourage person to use smooth fluid movements while handling items 	✓		low	low	low
		11. Eliminate unnecessary tasks <ul style="list-style-type: none"> place tags on heavy items or replace shelving of item with sample and tags. Scan the tag instead of the item. 		✓	high	med	med
15. Static, awkward back postures	<ul style="list-style-type: none"> Work positioned too low Items positioned too far from the body 	124. Raise the work piece / work surface <ul style="list-style-type: none"> raise cash counter or grocery counter so that the items are located just below elbow height 		✓	high	med	med
		13. Encourage ergonomic work technique <ul style="list-style-type: none"> encourage individual to allow the item to move closer using the conveyor 	✓		low	low	low
		150. Re-design the work space <ul style="list-style-type: none"> use a divertor to move products closer to the cashier 		✓	med	low	med

Back/Torso (cont'd)

Job Factor	Potential Causes	Corrective Action	Level of Changes		Cost	Impact On	
			✓ Minor Modification	✓ Major Change		Quality	Productivity
16. Lifting forces	<ul style="list-style-type: none"> Item is too heavy Person lifts items for scanning 	41. Move work piece closer to body <ul style="list-style-type: none"> instruct person to use the conveyor belt to bring groceries as close to the body as possible prior to lifting and handling the grocery item 	✓		low	low	low
		11. Eliminate unnecessary tasks <ul style="list-style-type: none"> instruct person to encourage customer to leave heavy items in the grocery cart rather than lifting the item from the cart place tags on heavy items or replace shelving of item with sample and tags. Scan the tag instead of the item. 	✓		low	low	low
		149. Provide appropriate tools <ul style="list-style-type: none"> provide a hand scanner so that heavy items can be left in the cart 		✓	high	med	med
		149. Provide appropriate tools <ul style="list-style-type: none"> provide a hand scanner so that heavy items can be left in the cart 		✓	low to high	low	low
	<ul style="list-style-type: none"> Raised lip on front of scanner prevents products from sliding 	35. Maintain tracks, rollers, and movement mechanisms <ul style="list-style-type: none"> adjust conveyor belt and scanner to ensure a smooth transition. clean and maintain scanner on a regular basis 	✓		low	high	high
			✓		low	high	high

Back/Torso (cont'd)

Job Factor	Potential Causes	Corrective Action	Level of Changes		Cost	Impact On	
			✓ Minor Modification	✓ Major Change		Quality	Productivity
	<ul style="list-style-type: none"> Person lifts item for scanning 	148. Provide appropriate equipment <ul style="list-style-type: none"> provide a scanner which can scan bar codes in different orientations 13. Encourage ergonomic work techniques <ul style="list-style-type: none"> encourage person to slide items rather than lifting them (assumes high quality scanner) 		✓	high	high	high
			✓		low	med	med
17. Pushing or pulling	<ul style="list-style-type: none"> Rarely occurs 	N/A					
18. Whole body vibration	<ul style="list-style-type: none"> Rarely occurs 	N/A					
19. Fixed position, standing	<ul style="list-style-type: none"> Stands in one position 	52. Provide a footrail or footrest <ul style="list-style-type: none"> provide a footrest/footrail that allows the person to periodically raise one leg 		✓	med	low	low

Legs/Feet

Job Factor	Potential Causes	Corrective Action	Level of Changes		Cost	Impact On	
			✓ Minor Modification	✓ Major Change		Quality	Productivity
20. Standing on hard surfaces or exposure to hard edges on legs, knees, and feet	<ul style="list-style-type: none"> Stands on a hard surface Leans against conveyor frame 	86. Provide an appropriate anti-fatigue mat <ul style="list-style-type: none"> anti-fatigue matting should be large enough to accommodate movement of the person 		✓	med	med	med
		96. Provide appropriate shoe inserts	✓		low to med	med	med
		9. Eliminate exposure to hard edges <ul style="list-style-type: none"> provide high density foam padding 		✓	med	low	low
		13. Encourage ergonomic work techniques <ul style="list-style-type: none"> encourage individual to allow the item to move closer using the conveyor 	✓		low	low	low
		150. Re-design the work space <ul style="list-style-type: none"> use a divertor to move products closer to the cashier 		✓	med	low	med

Legs/Feet (cont'd)

Job Factor	Potential Causes	Corrective Action	Level of Changes		Cost	Impact On	
			✓ Minor Modification	✓ Major Change		Quality	Productivity
21. Awkward leg postures	<ul style="list-style-type: none"> Rarely occurs 	N/A					
22. Awkward foot postures	<ul style="list-style-type: none"> Lack of toe clearance 	80. Provide adequate leg clearance		✓	med to high	low	med
		81. Provide adequate toe clearance		✓	med to high	low	med
		132. Remove obstructions <ul style="list-style-type: none"> clear boxes, items from floor to allow room 	✓				

Head/Eyes

Job Factor	Potential Causes	Corrective Action	Level of Changes		Cost	Impact On	
			✓ Minor Modification	✓ Major Change		Quality	Productivity
23. Difficult to see/light levels too low/too high	<ul style="list-style-type: none"> Glare on monitor/screen 	18. Improve visual access to work <ul style="list-style-type: none"> position key pad read out to minimize glare 	✓		low to med	high	med
		102. Provide displays which are readable and easy to understand		✓	med to high	med	med
		109. Provide protection from glare from overhead lights/tasks lights	✓	low	med	med	
24. Intensive visual tasks, staring at work objects for long periods	<ul style="list-style-type: none"> Rarely occurs 	20. Incorporate rest pauses	✓		low	high	med

This page intentionally left blank