**Risk Assessment**

**Safety Plan**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Project information: | | | | | | |
| *Simulated Assembly Line and Process Workstation* | | | | |  | 11/16/2018 |
| Name of Project | | | | |  | Date of submission |
| Team Member |  | Phone Number |  | e-mail | | |
| JoEll Williams |  | (305)-608-6222 |  | joell1.williams@famu.edu | | |
| Cheyenne Laurel |  | (863)-669-5910 |  | crl15d@my.fsu.edu | | |
| David DiMaggio |  | (610)-999-2486 |  | dcd14@my.fsu.edu | | |
| Boluwatife Olabiran |  | (850)-300-0769 |  | boluwatife1.olabiran@famu.edu | | |
| Nataajah Taylor |  |  |  | nataajah1.taylor@famu.edu | | |
| Faculty mentor |  | Phone Number |  | e-mail | | |
| Shayne McConomy |  | N/A |  | smcconomy@eng.famu.fsu.edu | | |
| Dorr Campbell |  | N/A |  | dcampbell@eng.famu.fsu.edu | | |
| Dylan Sutton |  | N/A |  | suttonch@tcc.fl.edu | | |
| Bobette Stubblefield |  | N/A |  | stubbleb@tcc.fl.edu | | |
| I. Project description: | | | | | | |
| Design a system that can handle and sort quantified materials in different categories of different sized materials that will also be | | | | | | |
| distinguished of the type of material, metal or plastic. With materials already bought and other materials considered, our goal is | | | | | | |
| to work as efficient as possible. Our design should correctly place the materials in the correct placeholders without the help of | | | | | | |
| human assistance. Also, our system should be designed in such a way that someone else can make improvements or change the | | | | | | |
| independent variable and still operate the way it did before. | | | | | | |
|  | | | | | | |
|  | | | | | | |
|  | | | | | | |
| II. Describe the steps for your project: | | | | | | |
| First, the objects will start on the conveyor belt in a timely manner where there will be a sensor that will determine the size of the | | | | | | |
| object. Depending on the size of the object, it will continue to move straight along the conveyor belt or onto a conveyor belt | | | | | | |
| perpendicular to the initial belt. For the object to get onto the perpendicular belt, an armed mechanism will push/direct | | | | | | |
| the object. When the object is on the appropriate conveyor belt, it will then be guided to the left or right side of the belt based on | | | | | | |
| the type of material, metal or plastic. From then, the material should fall into its respective bin and not on the floor or wrong bin. | | | | | | |
|  | | | | | | |
|  | | | | | | |
|  | | | | | | |
| III. Given that many accidents result from an unexpected reaction or event, go back through the steps of the project and imagine what could go wrong to make what seems to be a safe and well-regulated process turn into one that could result in an accident. (See examples) | | | | | | |
| For the conveyor belt to move in a timely manner, it cannot go too slow but there is a possibility for the conveyor belt to run too | | | | | | |
| fast. The motor that controls and rotates the diverter arm could malfunction and rotate too far and too fast, possibly flinging the | | | | | | |
| object to be sorted. Also, multiple electrical components are to be wired together. Proper and safe wiring must be followed. | | | | | | |
|  | | | | | | |
|  | | | | | | |
|  | | | | | | |
|  | | | | | | |
|  | | | | | | |
| IV. Perform online research to identify any accidents that have occurred using your materials, equipment or process. State how you could avoid having this hazardous situation arise in your project. | | | | | | |
| Possible accidents from a conveyor can include loss of fingers and burn fractures but those cases are when working with large | | | | | | |
| pieces of machinery. In our case only burns and cuts are applicable from the assembly line moving. A malfunctioning diverter arm | | | | | | |
| can cause injury by swinging and hitting someone. These hazards can be avoided with proper safety warnings and well-polished, | | | | | | |
| functioning code | | | | | | |
|  | | | | | | |
|  | | | | | | |
|  | | | | | | |
|  | | | | | | |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| V. For each identified hazard or “what if” situation noted above, describe one or more measures that will be taken to mitigate the hazard. (See examples of engineering controls, administrative controls, special work practices and PPE). | | | | | | |
| To protect from cuts due to sharp edges on the assembly line, corner guards can be installed. | | | | | | |
| Restrictions will be placed on the angle of rotation of the diverter arm allowed so as not to swing out of the desired area. | | | | | | |
| Fail safes could be implemented to shut down the conveyor belt when its going too fast. | | | | | | |
| For proper and safe wiring, OSHA suggest a wiring diagram is always kept nearby the device and that qualified individuals set- | | | | | | |
| up the wiring. | | | | | | |
| Restrictions will also be placed on the speed of rotation of the diverter arm so there will be no danger of damage to the product | | | | | | |
| transported or anyone around. | | | | | | |
|  | | | | | | |
| **VI. Rewrite the project steps to include all safety measures taken for each step or combination of steps. Be specific (don’t just state “be careful”).** | | | | | | |
| |  | | --- | | First, the objects will start on the conveyor belt in a timely manner at a slow and regulated conveyor belt speed where there will be | | a sensor that will determine the size of the object. | | Depending on the size of the object, it will continue to move straight along the conveyor belt or onto a conveyor belt perpendicular | | For the object to get onto the perpendicular belt, an armed mechanism will push/direct the object. The armed mechanism will have restricted angle and speed of rotate The armed mechanism will have restricted angle and speed of rotation to prevent injuries to personnel or damages to When the object is on the appropriate conveyor belt, it will then be guided to the left or right side of the belt based on | | to the initial belt. Corner/rail guards will be installed to prevent cuts due to sharp edges. |   For the object to get onto the perpendicular belt, an armed mechanism will push/direct the object. The armed mechanism will | | | | | | |
| have restricted angle and speed of rotation to prevent injuries to personnel or damage to products transported. | | | | | | |
| When the object is on the appropriate conveyor belt, it will then be guided to the left or right side of the belt based on | | | | | | |
| the type of material, metal or plastic. From then, the material should fall into its respective bin and not on the floor or wrong bin. | | | | | | |
| All coding must be triple checked and tested with each component individually before integration into the complete system. | | | | | | |
|  | | | | | | |
|  | | | | | | |
|  | | | | | | |
| **VII. Thinking about the accidents that have occurred or that you have identified as a risk, describe emergency response procedures to use.** | | | | | | |
| For emergency purposes, a first aid kit is always to be kept nearby, mainly for cuts and bruises. | | | | | | |
| For possible wiring hazards, a fire extinguisher is to be kept nearby. | | | | | | |
| Emergency contact information for the contacts listed above are to be posted nearby as well. | | | | | | |
| An emergency shut off switch is to be provided to turn off power | | | | | | |
|  | | | | | | |
|  | | | | | | |
|  | | | | | | |
|  | | | | | | |
| VIII. List emergency response contact information: | | | | | | |
| * Call 911 for injuries, fires or other emergency situations * Call your department representative to report a facility concern | | | | | | |
| Name |  | Phone Number |  | Faculty or other COE emergency contact |  | Phone Number |
| Nataajah Taylor/JoEll Williams |  | N/A |  | Dylan Sutton |  | N/A |
| Cheyenne Laurel |  | N/A |  | Bobette Stubblefield |  | N/A |
| David DiMaggio/Boluwatife Olabiran |  | N/A |  | Shayne McConomy |  | N/A |
|  |  |  |  |  |  |  |
|  | | | | | | |
| * Faculty Review update (required for project changes and as specified by faculty mentor) * Updated safety reviews should occur for the following reasons:  1. Faculty requires second review by this date: 2. Faculty requires discussion and possibly a new safety review BEFORE proceeding with step(s) 3. An accident or unexpected event has occurred (these must be reported to the faculty, who will decide if a new safety review should be performed. 4. Changes have been made to the project. | | | | | | |
| Team Member |  | Date |  | Faculty mentor |  | Date |
| Nataajah Taylor |  | 11/16/2018 |  | Dylan Sutton |  |  |
| Cheyenne Laurel |  | 11/16/2018 |  | Bobette Stubblefield |  |  |
| JoEll Williams |  | 11/16/2018 |  | Dylan Sutton |  |  |
| David DiMaggio |  | 11/16/2018 |  | Shayne McConomy |  |  |
| Boluwatife Olabiran |  | 11/16/2018 |  | Shayne McConomy |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |

**Report all accidents and near misses to faculty mentor.**