

Project Charter

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Project Scope

Detects material type and size of an object and sort accordingly. The system ~~will~~ operates using a traditional industry recognized automation system. Written learning aid guides training exercises.

Project Description

The project is to design an assembly line training unit for Tallahassee Community College (TCC) to use in the Advanced Manufacturing Training Center (AMTC). The AMTC professors will be able to use the assembly line to teach their students how to troubleshoot and overcome common errors seen in industry assembly line units. The project will require the senior design team to establish a fully functional training unit with conveying and sorting functions, along with instructional documents for the professors to understand how to utilize the intended hardware and software errors in training their students.

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Key Goals

The overall goal of our project is to meet ~~or exceed~~ all of the sponsors needs for and expectations with the product design and training lessons in professionalism. ~~Our key specific goals are to design and build a working assembly line controlled by an industry recognized programmable logic controller (PLC) that incorporates functions such as convey and sort by size and material type trainer that fits the project scope and is capable of completing the tasks needed for the course curriculum. The manual documenting the planned hardware and software errors as well as safety precautions and proper use accompanies the finished product. To be professional in communication and in meetings with our sponsor and other peers.~~

The team aims to communicate in a timely, professional, and prompt manner. The group promises to complete all tasks with enough time to receive teaching assistant and professor feedback. Each member vows to complete their individual responsibilities with integrity, pride for their own professional work, and the team's accomplishments and evaluation as motivation for greatness, thoroughly based on the project scope and assignment rubrics.

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Market

The immediate market for this product~~that this product can be used for~~ is at other cColleges and uUniversities that have -similar courses manufacturing and programs. This product can also be used as a training tool in the manufacturing industry. The curriculum would be helpful for vocational training schools as well because the programmable glitches would help technicians understand future potential errors. Technicians, engineers who design manufacturing facilities, professors of engineers, and manufacturing industry floor managers would benefit from the use of the assembly line trainer.

Assumptions

~~For the group~~We to work effectively it is assumed that we will have appropriate access to the AMTC facility ~~conveyor, and conveyor~~ and be able to work on the project ~~Monday through Friday between 8:00 and 18:00 at reasonable times~~. We will assume that all of our systems work on single phase 110V power, ~~that the conveyor will be used in the vicinity of building air supply or an air tank. Only cubes between a 1x1x1 and 5x5x5 inch size will be sorted. It is assumed that the group will not need to perform any maintenance on the unit in the future, although future design teams should be able to make modifications and improvements. Size of items will vary, yet will be reasonable based on the size of the existing conveyor system.~~

Stakeholders

The stakeholders of ~~the our~~ project include Dr. Shayne McConomy, Dr. Carl Moore, ~~Steven Wood, Dr. Catrenia MeLendon~~, and Tallahassee Community College's ~~Advanced Manufacturing Training Center~~. Dr. McConomy and Dr. Moore serve as advisors to ~~the our~~ group. They ~~provide guidance and suggestions for the will guide us as we become more detailed orientated with our design implementation. Steven Wood~~Dr. MeLendon ~~will will represent the project be our sponsor and provide feedback on whether or not customer needs are met for the project. TCC's AMTC sponsors the project in hopes of adding the training unit to their manufacturing training course. She will be the ambassador as to what exactly the scope of the project will be. TCC will provide a budget and is looking for a product that will help advance their manufacturing classes.~~

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Code of Conduct

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Mission Statement

Team 520 is dedicated to providing a reliable and functional product. The team members will be courteous, work cohesively and independently, tackle tasks with a sense of urgency, and value teamwork and fairness above self. Each member will contribute their best. Team 520 prides itself in having members who are considerate, fair, and hard working.

Team Roles

—The responsibilities will be separated into two groups ~~with one leader over both groups~~. The tasks will be divided into mechanical engineering and electrical engineering ~~needs~~. Mechanical Engineering will include the mechanical motions the assembly line must be capable of, ~~as well as, structural support and some of the robotics~~ which will be done by Damira Solms, Justin Law, and Nicolas Salerno. The electrical engineering portion will include the electronics

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on the assembly line, robotics, and some PLC programming which will be performed by Robert Smith and Ryan Dodson. Other duties that surface will be assigned based on mechanical and electrical discipline, current workload, and similarity to team role. If one member is overtasked with class assignments the other members are expected to work on the physical deliverable. No member is to be untasked. –The team roles are as follows:

~~Software Hardware/~~Engineer: Ryan Dodson

~~Mechanical Process~~ Engineer: Nicholas Salerno

~~Design/~~Mechanical Engineer: Justin Law

~~Website Designer and Program Engineer/Sorting Mechanism Engineer:~~ Damira Solms

~~Programming/~~Electrical Engineer: Robert Smith

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Communication

Immediate communication within our group will be performed mainly via group text message. Responses should happen within 8 hours by the day's end, if a member chooses to fail at communicating promptly only the opinions of those who responded are considered, or early the following morning. Important documents are will be sent and edited either through Google Docs or school email, depending on the content and situation. Communication with the advisor and sponsor will occur mostly through email and scheduled meetings. All group members, and the sponsor, and advisor if applicable, must be carbon copied (CC) in pertinent emails.

Team Dynamics

The students will work as a team while allowing one another to feel free to make any suggestions or constructive criticisms without fear of being ridiculed and/or embarrassed. If any member on this team finds a task to be too difficult it is expected that the member should ask for help from the teaching assistants, professor, or perform further research utilizing the internet or physical books other teammates. If any member of the team feels they are not being respected or taken seriously, that member must bring it to the attention of the team in order for the issue to be resolved. We shall NOT let emotions dictate our actions. Everything The group assignments are designed to fuel and inspire the development of the deliverable. Therefore, each group member must approach their portion of assignments seriously. Each group member will check canvas regularly and all assignments must be started at least a week ahead of the due date, is done for the benefit of the project and together everyone achieves more.

Ethics

Team members are required to be familiar with the National Society of Professional Engineer (NSPE) Engineering Code of Ethics as they are responsible for their obligations to the public, the client, the employer, and the profession. There will be stringent adherence to the following of the NSPE Engineering Code of Ethics.

Dress Code

Team meetings and adviser meetings will be held in casual attire. Sponsor meetings ~~and group presentations~~ will be business casual to formal as decided by the team per event. The group presentations will be conducted in formal attire.

Decision Making

Decision making is conducted by consensus and majority of the team members. Should ethical/moral reasons be cited for dissenting reason, then the ethics/morals shall be evaluated as a group and the majority will decide on the plan of action. Individuals with conflicts of interest should not participate in decision-making processes but do not need to announce said conflict. It is up to each individual to act ethically and for the interests of the group and the goals of the project. No decision will be made simply because it makes the project easier to perform. Achieving the goal of the project will be the top priority for each group member. Below are the steps to be followed for each decision-making process:

- Problem Definition - Define the problem and understand it. Discuss among the group.
- Tentative Solutions - Brainstorms possible solutions. Discuss among group most plausible.
- Data/History Gathering and Analysis - Gather necessary data required for implementing Tentative Solution. Re-evaluate Tentative Solution for plausibility and effectiveness.
- Design - Design the Tentative Solution product and construct it. Re-evaluate for plausibility and effectiveness.
- Test and Simulation/Observation- Test design for Tentative Solution and gather data. Re-evaluate for plausibility and effectiveness.
- Final Evaluation - Evaluate the testing phase and determine its level of success. Decide if the design can be improved and if time/budget allows for it.

Attendance Policy

Each member of the team is to attend every planned meeting unless they are unable due to a schedule conflict with class, work, or other rational reason which they should make known to the other group members and anyone else attending the meeting at least 24 hours-2 hours before the meeting. Team members are expected to be at the location of the meeting no later than 10 minutes before the time of the scheduled meeting and should notify the other team members ~~if they~~ if they are going to be late. The~~Our entire~~ group shall meet ~~every~~ Friday at noon if working on the physical model, members tasked with other work are expected to put that time into the work instead. A record of attendance and tardiness will be kept in a google doc and reviewed at the weekly group meeting. Any unnotified absence from, or any two unnotified tardies for a meeting will be a point of discussion in the weekly meeting. After 3 unnotified absences and 5 unnotified tardies, Dr. McConomy will be informed. At least one member of our group shall meet with Dr. Moore every Tuesday at 11:30 AM until Dr. Moore decides that we can change to every other Tuesday at 11:30 AM. When meeting with the sponsor representative, ~~our sponsor, Steven Wood~~Dr. MeLendon, there should be at least one group member from each

discipline, 1 ME and 1 EE. The team leader shall meet with Dr. McConomy once per month to go over progress and group conduct.

Conflict Resolution

In the event of discord amongst team members the following steps shall be respectfully employed:

- Communication of points of interest from both parties which may include demonstration of active listening by both parties through paraphrasing or other tool acknowledging clear understanding.
- Administration of a vote, if needed, favoring majority rule.
- Rock Paper Scissors
- Team Leader intervention.
- Instructor will facilitate the resolution of conflicts

Statement of Understanding

We have read, understand, and approve of the above statements regarding the code of conduct for Team 520.

_____	Date: _____
Damira Solms	
_____	Date: _____
Nicholas Salerno	
_____	Date: _____
Justin Law	
_____	Date: _____
Ryan Dodson	
_____	Date: _____
Robert Smith	