FAMU/FSU College of Engineering
Department of Electrical and Computer Engineering

Project Charter

301 IEEE SoutheastCon - Hardware Competition
Last Edited: 1/7/2022

Kelvin Hamilton
Melissa Emery
Allison Rosenbaum
Raymond Martinez
Destiny Law

Code of Conduct

Mission Statement

Team 301 is committed to ensuring a positive work environment that supports professionalism, integrity, respect, and trust. Every member of this team will contribute a full effort to the creation and maintenance of such an environment in order to bring out the best in all of us as well as this project.

Roles

Each team member is delegated a specific role based on their experience and skill sets and is responsible for all here-within (team members will assist in performing tasks of other team members should the need arise):

Team Members:

Project Manager [Kelvin Hamilton]

Manages the team as a whole; develops a plan and timeline for the project, delegates tasks among group members according to their skill sets; finalizes all documents and provides input on other positions where needed. The Project Manager is responsible for promoting synergy and increased teamwork. If a problem arises, the Project Manager will act in the best interest of the project. The Project Manager takes the lead in organizing, planning, and setting up meetings. The Project Manager will also assist the Project Analyst with the finances and will take on the role of Project Analyst should the current Project Analyst be unable to perform their duties. Finally, they give or facilitate presentations by individual team members and are responsible for overall project plans and progress.

Project Analyst [Melissa Emery]

Assists the Project Manager in maintaining the timeline and scheduling team meetings. They are responsible for keeping a record of all correspondence between the group and ‘minutes’ for the meetings. They are also responsible for managing the budget and maintaining a record of all purchase requests. Any product or expenditure requests must be presented to the Project Analyst, who is then responsible for reviewing and the analysis of equivalent/alternate solutions. They then relay the information to the team and if the request is granted, order the selection. A record of these analyses and budget adjustments must be kept. The Project Analyst will assume the role of Project Manager should the current Project Manager be unable to perform their duties.

Drivetrain Engineer [Raymond Martinez]
They are responsible for the design and programming of the drivetrain and related systems. They take initiative in deciding the physical components such as the wheels, motor drivers, etc. and program the necessary code to make the hardware function.They maintain a line of communication with all other members. They keep all design documentation for record. The Drivetrain Engineer is responsible for delegating tasks to other members as they pertain to Drivetrain.

Co-Drivetrain Engineer [Kelvin Hamilton]
They assist the Drivetrain Engineer as necessary to further progress the project. Hardware design choices are decided jointly between the Drivetrain and Co-Drivetrain Engineers. Should the Drivetrain Engineer be unable to perform their duties, the Co-Drivetrain Engineer will assume their responsibilities.

Data Acquisition Engineer [Allison Rosenbaum]
They are responsible for creating a program to process the information taken in from the IR sensors and the cameras. They are also responsible for the codebase for the robot. They maintain a line of communication with all other members. They keep all design documentation for record. Data Acquisition Engineer is responsible for delegating tasks to other team members as they pertain to sensors.

Peripheral Hardware Engineer [Allison Rosenbaum]
They are responsible for designing and programming the mechanisms needed for the various obstacles. They maintain a line of communication with all other members. They keep all design documentation for record. Peripheral Hardware Engineer is responsible for delegating tasks to other team members as they pertain to software.

Co-Data Acquisition Engineer [Destiny Law]
They assist the Data Acquisition Engineer as necessary to further progress the project. Software design choices are decided jointly between the Lead and Co-Data Acquisition Engineers. Should the Lead Data Acquisition Engineer be unable to perform their duties, the Co-Data Acquisition Engineer will assume their responsibilities.

Integration Engineer [Melissa Emery]
They are in charge of making sure the components of the project are cohesive and fit within the given parameters and scope of the project. The Integration Engineer will make sure that the final product will be rule abiding according to the given SoutheastCon Hardware Competition Rules. The Integration Engineer will be responsible for the development of the music and moving display on the robot and making sure that all modules communicate effectively. Should the Integration

Engineer be unable to perform their duties, the lead Drivetrain Engineer will assume their responsibilities.

All Team Members:

- Work cooperatively on the overall project
- Buy into the project goals and success
- Deliver on commitments
- Adopt team spirit
- Listen and contribute constructively
- Be effective in trying to get message across
- Be open minded to others ideas
- Respect others roles and ideas

Communication

The main form of communication will be a GroupMe chat amongst the team, for non-formal communication (i.e. tasks, meeting dates, etc.). Email will be the secondary form of communication for formal discussions (i.e. advisor communication, file transfer, finances, etc.). A Google Drive shared amongst the team members will be the main form of document sharing. All members will have access to all files pertaining to the project but shall only edit those pertaining to their individual responsibilities (unless working closely with the team member in charge of said document).

Each group member must have a working email for the purposes of communication and file transference. Members must check their emails and GroupMe at least twice a day to check for important information and updates from the group. Although members will be initially informed via GroupMe, meeting dates and pertinent information from the advisor will be sent over email.

Responses to communication sent via Email/GroupMe are expected within 24 hours of being sent. If no response is received regarding important decisions, team members currently active in communication will vote to either extend communication again or make the decision without the unspoken party.

If a meeting must be canceled, an email/GroupMe must be sent to the group/advisor at least the day prior.

Attendance Policy

Any team member that cannot attend a meeting must give reasonable notice informing the group of their absence. Reason for absence will be appreciated but not required if personal. Repeated absences (3) in violation with this agreement will not be tolerated and will be reported to the course professor and team advisor. “Reasonable notice” will be determined by the Project Manager and the Project Analyst on a case-by-case basis.

Team Dynamics

The students will work as a team while allowing one another to feel free to make any suggestions or constructive criticism 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 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 done is for the benefit of the project and together everyone achieves more.

Ethics

Team members are required to be familiar with the NSPE and IEEE Engineering Code of ethics. There will be stringent following of the NSPE and IEEE Engineering Code of Ethics. While there are no public, employer, or professional responsibilities, the codes must be upheld to ensure the safety and integrity of the team members, other competitors, and spectators.

Dress Code

Team and advisor meetings will be held in casual attire. Group presentations and the competition will be business casual with team shirts decided by the team.

Weekly and biweekly Tasks/Meetings

All team members will participate in all meetings with the advisor. During said times: ideas, project progress, budget, conflicts, timelines, and due dates will be discussed. In addition, tasks will be delegated to team members during these meetings. Any team member not present in a pre-scheduled meeting forfeits their vote in decisions made during that meeting.

Tasks assigned during meetings are expected to have progress made by the next scheduled meeting or the task may be delegated to another team member.

Decision Making

It is conducted by consensus and majority of the team members. Should ethical/moral reasons be cited for dissenting reasons, 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. 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 the group what is most plausible.

- Data/History Gathering and Analyses – 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 design can be improved and if time/budget allows for it.

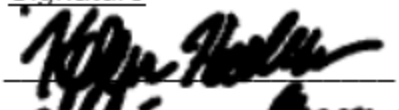
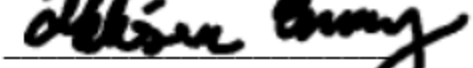
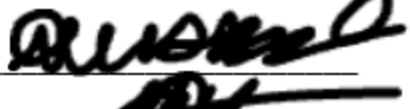
Conflict Resolution

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 tools acknowledging clear understanding.
- Administration of a vote, if needed, favoring majority rule.
- Project Manager intervention.
- Instructor will facilitate the resolution of conflicts.

Statement of Understanding

By signing this document the members of Team 301 agree to all of the above and will abide by the Code of Conduct set forth by the group.

Name	Signature	Date
Kelvin Hamilton		1/7/2022
Melissa Emery		1/7/2022
Allison Rosenbaum		1/7/2022
Raymond Martinez		1/7/2022
Destiny Law		1/7/2022

Project Scope

Project Description:

Team 301's goal is to create a small form factor robot that can navigate and complete tasks within a course set up for the IEEE SoutheastCon 2022 Student Hardware competition. This robot will push, throw, and place items, while navigating the course in a timely manner, as described by the rules of the competition. The previously mentioned functionality will allow the robot to successfully participate in the competition and pursue victory for Team 301 and the FAMU-FSU College of Engineering.

Key Goals:

According to the rules of the competition, the robot must be able to perform the following tasks autonomously:

- Traverse an L-shaped track
- Push marshmallows off the track
- Retrieve beads from an elevated rack
- Launch said beads into fishnets placed along the outside of the track.
- Bonus points are awarded to Robots decorated with lights and music according to a chosen theme
- Complete the obstacle course in under 3-minutes, though the faster completed: the more points are awarded
- All of which also completed without straying from track or bumping into placed obstacles

Markets:

As the project is not for consumer or business use, there is no market. The project is exclusively for competition purposes as per the IEEE SoutheastCon 2022 Student Hardware rules.

Assumptions:

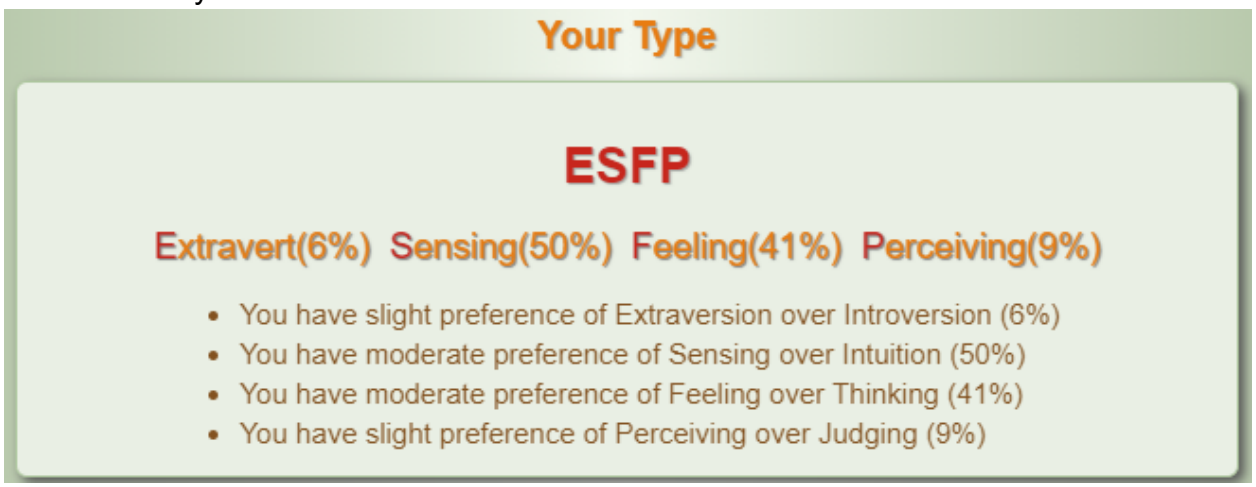
Team 301 will design a robot that abides by the rules and regulations of the IEEE SoutheastCon 2022 Student Hardware Competition to the best of their ability.

Stakeholders:

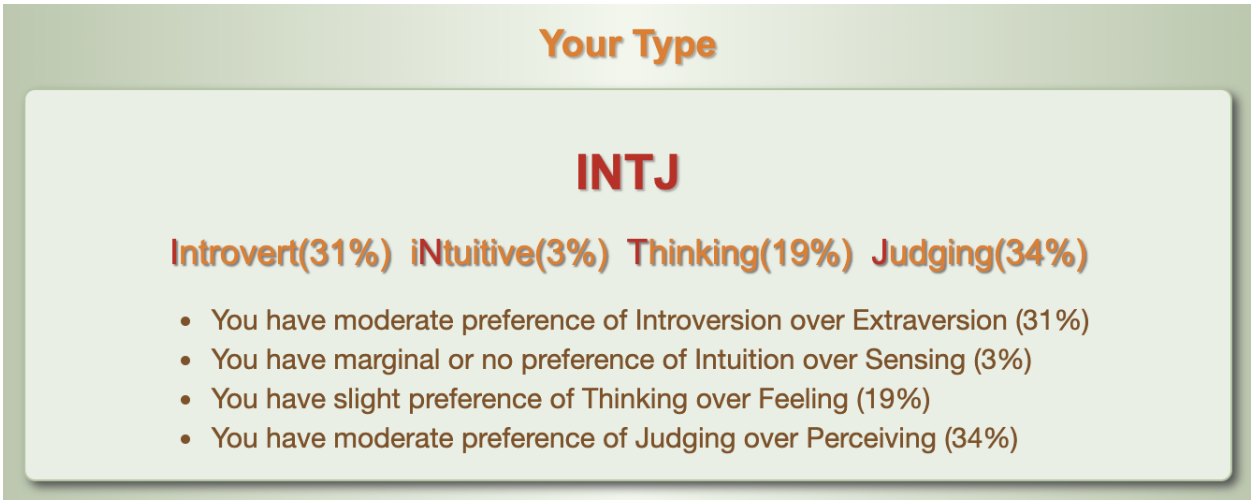
- FAMU-FSU College of Engineering
- Bruce Harvey, Ph.D.
- Oscar Chuy, Ph.D.
- Babak Noroozi, Ph.D.
- Jerris Hooker, Ph.D.

Jung Typology Personality Test

Melissa Emery

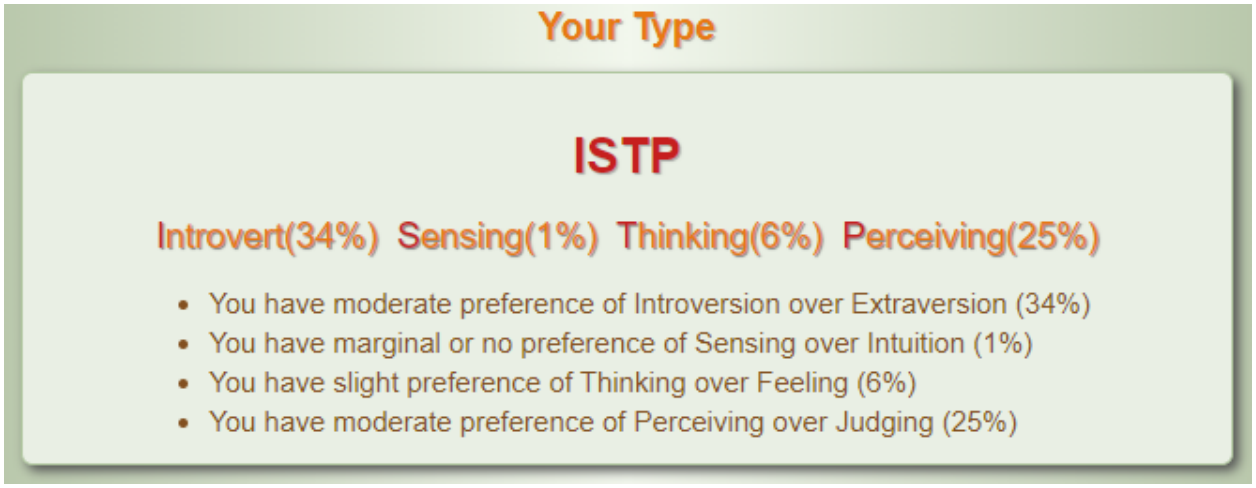


Kelvin Hamilton



Allison Rosenbaum

Raymond J. Martinez



Destiny Law