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Project Management

With the evolution of technology came the evolution of resources and the rapid advances of technical skills. The development of computers started in the late 1800s and has rapidly developed into technology far ahead of its time. As technology became more common, in the 1980s the quality of the technology was the main focus. This was to set a basis of how systems should run efficiently but also withstand a lot of use. Next, in the 1990s, came the idea of globalization with technology: spreading the newest technology around the world. Finally, the world has come to rapid development in the 2000s. Extreme development of high end products has become the newest focus in the US and the entire world. This way companies can make the most product to then sell and the newest product to beat their competitors.

As the velocity increased the initial level of control decreased, but now there has been a major push for control and management within different companies. The idea of Project Management began in the US Navy during the Polaris Missile Project when a push for control came into action. This idea of project management then led into NASA as the Great Space Race that began in the mid-1900s when time was under pressure but with safety at the most important point. As a lack of organization, communication, and unsuccessful outcomes came to be, project management is now not only expected but required in a work environment.

Early on in technology, there were a lot of very intelligent engineers who knew exactly what to do they just did not know how to communicate. Communication is key to a successful and properly functioning business in today's modern society. I have been involved in high school leadership for almost four years and one of the very first things I learned was a principle called ADPIE. This stands for assess, diagnose, plan, implement and evaluate. Before starting a project, we are required to go through each of these steps and incorporate these ideas in order to successfully accomplish our goal. These steps allow us to organize our projects and keep ourselves focused on the end result. This can easily be applied to a real world situation because it is important to stay focused throughout a project. If one teammate gets off topic, then the whole project could be pushed back and the end goal not achieved. We assess the situation at hand, then diagnose the problem, and how to fix the problem. We implement this plan then go back and evaluate our process to see if we achieved what we originally set out to do.

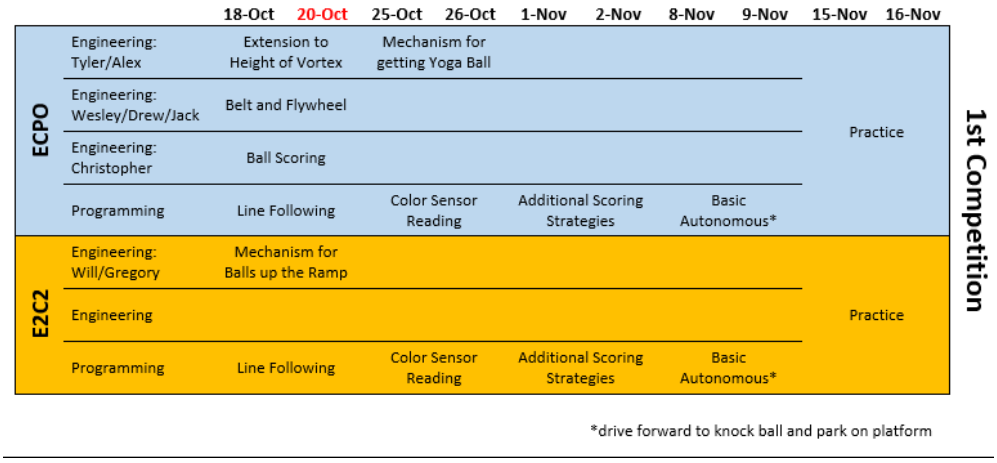
This is where communication comes into play. Without proper communication a team cannot function as one whole, the team will be separated and therefore unproductive. People are not always born with efficient communication skills, but they can be learned through several exercises and pure practice. Effective communication is very different from straight communication. One key aspect of effective communication is listening. What does this have to do with communication, listening and talking are very different? Well, one cannot communicate without listening to those around him or her. In order to have good group process, a team must communicate with each other, but also listen to one another, to ensure everyone in the group is heard and respected. Work environments can be stressful and therefore lead to an increase in volume and a decrease in organization when communicating. The key to effective communication is practice. In order to learn from mistakes, it is important to hold one's

coworkers accountable. If someone begins to yell or get flustered, tell them to stop, and take a step back from the situation in order to get their thoughts together so they can say exactly what they want.

Using effective both leadership and communication skills can be very difficult especially in a team dynamic. As a female in CS I have become well aware of how men can dominate the field and different aspects of the group relationship. Though I have not experienced this first hand, I know it is something that I will come across in my future career. In order to effectively lead, I need to stand up for myself, and make sure my voice is heard, or none of my ideas and/or opinions will be taken into consideration. After making my way through leadership class at EC, starting as a freshman and through my senior year, I have learned that people will often look past a productive comment or idea, but in order to best work for the group, you first need to listen to everyone's ideas, then you need to use your voice to make sure you are heard and you can contribute the end product.

Organization is one last skill that, I believe, accompanies all aspects of project management. Organization can include literal organization of materials: using white boards to organize thoughts, filing cabinets, etc. but it also includes organizing one's thoughts to efficiently present them. In the rapid world of technology, for example, there is little time to waste while trying to get one's thoughts organized during a presentation. I see organization while using a planner to keep track of homework or the day's events. I also see organization at school with binders of different sections of OneNote to keep track of our classes. Whenever I visit my dad at work, I see white boards full of different scribbles that seem like a totally different language but I know that it makes perfect sense to him, because they are his own thoughts and scribbles. In robotics club this year, the team was introduced to the usage of GANTT Charts to

help us keep a timeline of the different projects we are doing and what we want to achieve by the end of the week. You can see an example of a GANTT Chart we used this year to prepare for our first competition! This year I have also been introduced to trello.com. Trello has been a great way to stay in touch with a team or a manager. We are able to create boards for different projects, set up group classes as well as give daily updates to keep our team updated! This kind of organization is key to an efficient professional environment.



		18-Oct	20-Oct	25-Oct	26-Oct	1-Nov	2-Nov	8-Nov	9-Nov	15-Nov	16-Nov	
ECPO	Engineering: Tyler/Alex	Extension to Height of Vortex		Mechanism for getting Yoga Ball								
	Engineering: Wesley/Drew/Jack	Belt and Flywheel								Practice		
	Engineering: Christopher	Ball Scoring										
	Programming	Line Following		Color Sensor Reading		Additional Scoring Strategies		Basic Autonomous*				
E2C2	Engineering: Will/Gregory	Mechanism for Balls up the Ramp										
	Engineering									Practice		
	Programming	Line Following		Color Sensor Reading		Additional Scoring Strategies		Basic Autonomous*				

1st Competition

*drive forward to knock ball and park on platform

On top of these few ideas, there have been many other web resources developed that aid in project management. For example, Smartsheet.com is an easy to use website that allows for collaborative management. At first glance this website seems hectic and overwhelming, but it is essentially trello.com on steroids. Smartsheet, allows for the common boards that state the several projects a team is working on. But it also allows for the main task as well as subtasks, dates, duration, progress and it can convert this information into a timeline or a GANT chart form depending on what is best for the company.

Lastly there is another website called, ZohoProjects.com that can be used for managing large projects. On Zoho, users can track tasks and milestones, and bugs. They can keep track of important dates on the calendar, keep track of documents and work collaboratively, and have an

individual timesheet that will set reminders for the team. Lastly there are different direct message forms that all users can use to collaborate and communicate about the project. This too seems is a great way to keep the company organized on a specific project.

I can definitely use these of skills in my life now and in the future: planning assemblies, staying organized with my school work and keeping up with my families' busy schedule. I also know that I can transfer these kinds of skills in my future. While becoming familiar with GANTT Charts, Trello and OneNote, these are very important skills to know for college and my career after. However, I don't believe that Zoho would be the best for Advanced Projects, but I believe Smartsheet could work with some more details in our communication!

To see both of these kinds of skills in action, I looked at a few major companies and researched their project management throughout their company. For example, Toyota has a form of management called the Toyota Way. This is a literal set of rules and principals related to team organization, quality of product and Problem solving. This idea has been so deeply rooted into the company it has become a part of the companies' atmosphere and expectation. The reason why the Toyota Way has gained so much success is because of the genuine expectation to uphold this idea. This is key to a well-organized company, no matter what forms of management are being used, it is important that everyone is using the same standards so there is not any question in authority. Companies like Boeing that have so many models of their product, each of which has lots of parts and it is vital that these individual parts function correctly. Managing these different skill sets is key to project organization within a large company that has to manage many moving parts. For specifically the 787 plane, Boeing has used PLM software in order to stay organized. PLM is the process of managing an entire lifecycle of a system from when it first

began. This way companies can learn from the mistakes that were made through the entire project so they will not happen again.

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