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Period 3

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My InvenTeam Experience

Over the course of the past few months, the Endeavour InvenTeam of Paso Robles High School has been diligently working to design and build a remote water quality sensing device. Although this is a very difficult and demanding project, it is also fun and rewarding. We have progressed as a team, as well as receiving special recognition at MIT, not to mention that this effort counts as a nationwide accomplishment for colleges all around the U.S. In addition to these already generous benefits, I have already received some more personal benefits, with many more to come.

As we began this project, we needed to do a lot of research to just get a basic idea of things, such as what kinds of sensors we would need, what we were sensing for in the water, where our device would be used, who would be using it, how long we would need it to last before it must be collected, what method we would use to transmit data, and the list just goes on and on. Some of the most important things we have researched so far, and are actually still learning new things about are data transmission methods, system integration,

water pollution indicators, and perhaps the most important of all, who will be using our device and what specifically they need. Another important area of research that we have conducted is team management. This has helped us to operate more efficiently, and helps maintain communication between our several different groups. We have developed a very effective way of running meetings and organizing and documenting things that will very probably help us throughout the rest of our lives in the work place.

Obviously the first major step in getting this grant was our grant proposal. A massive amount of work went into it, and we tried our best. A few weeks later, all our hard work was rewarded when we found that we got our grant. The completion of our grant proposal wasn't only a very important, if not the most important step towards our invention development, but it was the first deadline we really had that would be difficult to meet. There was a bit of a scramble towards the end, but it was finished in time. We will have to continue to work as a team as we did with the grant proposal if we want to meet all of our deadlines and have a fully functioning water sensor, and we fully intend to. Another helpful thing we have done is we have begun to learn how to use microcontrollers, which will be a big part of our invention, because this unit will be autonomous. It will need to "take care of it's self", and know how to collect the data it receives from the sensors, how to store it, and when and how to send the information back to us, among several other things. We have also done some labs on basic analog to digital and digital to analog conversion. This will be very important to us when

we need to take measurements from our sensors, and store them digitally. I can hardly say how much I have learned from doing these experiments. I have learned much about programming and building circuits. I am currently reading a book which I checked out that's explains how to build power supplies, and also explains a lot about electricity. As I am in charge of setting up and conducting experiments for the power portion of our invention, this book will undoubtedly be invaluable in helping me to build the power supply for distribution to our different components. Some other major landmarks that we have already achieved are the presentations myself and two other students gave at the Endeavour Academy parent meetings, which culminated in us giving a presentation to the school board. In our presentation to the school board, we asked for greater recognition of the Academy, as well as funding to help the entire class go to the showcase at MIT in June. The board liked our presentation so much, that they invited us to come and give another presentation. Another important step in making ourselves known was to talk with the media. We have been interviewed by several newspapers already, as well as the school journalism class, and even MIT's magazine. Not only does this make us more well known, but is fun and may help us to receive donations from local companies that would like to help the whole class go to the showcase in June. Perhaps one of the most important things we have done as of yet is to make Gantt charts for each group that we have divided into. These charts give us an idea of how much time we have to accomplish each task, as well as what tasks need to be completed. These charts will help to organize and guide the different teams throughout the rest of our

project, although they will not be confined to them.

I have already reaped great benefits from this experience. I have learned much about organization, and the grant application process. I never would have known quite how much work it is to keep everything documented and organized in the invention process without doing it first hand. I realize that I am very lucky to have this opportunity while I am still in High School. It is much better to be working under guidance from an instructor and with a group of fellow students than to be in the work place doing this for the first time, with little or no help. In short, I would much rather make my mistakes now than later on in life when much more is at stake, and this allows me to do that, although I hope to keep my mistakes minimal. In addition to learning about organizational skills and the application process and documentation, I have also learned a great deal about microcontrollers and some basic principles of electricity. These new skills I am developing will help me later in life, especially if I become an engineer as I hope to. Even if I don't, these will help me as organization is important everywhere, and with all of the technology today, it is always an advantage to know how it works. In addition to these few benefits mentioned, I will also gain much more knowledge throughout this process, as well as having a fun and overall rewarding experience. With all of this that I am learning from this project, I will continue to build on it and carry it with me through life. It will build my self confidence, and encourage me to try and invent things on my own, if not on such a large scale. I am very glad that I am enrolled in this class, as I believe I will learn a great deal

more than I already have, and it will help me get into a better college than I normally would have without this class. I realize that this project is a great undertaking, but I believe if we can make it through to the end and have a working invention, it will be one of the most rewarding experiences of my life.