

This example would receive a perfect score of 100 points out of 100.

## Period 3: Lessons Learned Example #2 16-0000

### Experience Gained

- Mark - I learned how to program with state programming and functions. I learned how to use loops, "ifs" and many other C commands. I also learned how gearing down loses speed and gains accuracy and how gearing up gains speed and loses accuracy. I learned how to use sensors, servos, and motors.
- Bob: - I gained more experience in CADing in SolidWorks.
- Lenny: - I learned that building a tripod helps aiming tethered projectiles. They help the aiming a lot.
- Paul: - I learned how to program the robot in an abstract way so it is easy to update your code using libraries and path planning that is based off of a real coordinate system.
- Keith: - I learned better engineering and how to cooperate with VEX and LEGOs.
- Sean: - I learned how to make libraries.

**Commented [MC1]:** Each section begins with a header as described in the rubric.

### Documentation Process

- Mark: - Through documentation, I learned how to make a project plan. I learned how useful a project plan can be for keeping the team on track and planning ahead for what to work on next. I also learned that by running simulations and designing prototypes, the robot became more accurate and reliable. Designing a flow chart made the programming easier for it planned out the architecture of the code.
- Bob: - I learned that documentation can be very useful if you forget why you did things.
- Lenny: - Through documentation, I learned how to take good photos of our team robots' mechanical designs and other important key features.
- Paul: - I learned that it is lots of fun!
- Keith: - The documentation process helped me to understand that it could help us stay organized and focused.
- Sean: - By doing the project plan, I was better able to understand what was going on.

**Commented [MC2]:** Each section includes a description as described in the rubric.

### Surprises

- Mark: - I was surprised at how useful the documentation was in the long-term! I was also surprised how the programming in C is hard compared to graphical languages.
- Bob: - The season was very short this year, and it surprised me.
- Lenny: - I was surprised how the building with VEX parts is hard compared to building in LEGOs.
- Paul: - I have been doing Botball for a number of years now so not that many things surprised me. However I was surprised that edge tracking while

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simple in concept is difficult to implement.

- Keith: - The season was very short this year, and it surprised me.
- Sean: - I was surprised at how hard it is to be a team captain and how hard it was to keep the team focused.

#### **Advice for Future Teams**

- Mark: - My advice to future Botball teams is to work hard on documentation for it is rewarding in the long run.
- Bob: - My advice to future Botball teams is that CAD models take longer than you might expect and that coding does too.
- Lenny: - My advice to future Botball teams is to use rubber bands for certain mechanisms for they are faster than motors and servos.
- Paul: - "Simplicity on the other side of complexity".
- Sean: - Come up with elegant mechanisms that do the job effectively.
- Keith: - Learn how to program in C and discover how all the different motors work before the season starts.

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