Team Evaluation:

We have had an extraordinary experience as BinaryEngine, where our team of 12 members came together one month ago to embark on this journey together with the shared aim to build and program the best robot in the competition.

Our team is a well comprised team consisting of mainly locals. Although we sometimes face challenges in communicating due to the dominating Cantonese speakers, we mainly conduct English in our team meetings and Whatsapp group conversations out of respect for one another. We believe that this is a very important trait of a strong team. We also try to include members that are less outspoken to express their ideas and remind members that are not frequent users of Whatsapp via other means of communication to ensure that they get important information, for example meeting times and venues. An especially good team working environment has also been established at the start of the process where all team members were respectful and understood difficulties with balancing the pressure of mid-terms and tasks to be completed for the internal competition, and was very appreciated by all members.

Our robot is designed to be program-friendly with maximized utilization of available space whilst maintaining a relatively simple design. The shooter robot has high stability owing to its large, rectangular base and low center of gravity. Our mechanism for gripping and transferring the basket is very straightforward, energy efficient and less risk-taking as we do not need to take in account of the uncertainty when the basket is lifted in the air by not lifting it whilst moving the basket.

Although we had a flexible work schedule, time management was difficult for us. This problem was highlighted by the slow progress and few missed deadlines. Therefore, we have taken up the approach where members will gather and work in the CYT lab whenever they are free to do work and stay late together to get work done as soon as we can. It was also difficult to round up all members of the team due to assignment deadlines and exams. We will keep offering updates to members who could not make team sessions and encourage them to come by reminding them more frequently to promote sense of unity within the team and raise team spirit.

The most rewarding part of the process so far is to witness the progress we have made since the start of the process of designing and making a robot by ourselves. Invaluable friendships have been fostered during the process of brainstorming, developing and testing the robot, and we have thoroughly enjoyed the exchange of knowledge behind the working of our robots as well as us being able to continue learning and thriving in our own areas of expertise.

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Technical difficulties we faced: For the mechanical division, the biggest problem we faced is the lack of tools and materials. The size limit of the shooter robot had also lead to multiple amendments in our shooter robot design. For the hardware division, there were a few difficulties faced include: design of the motor driver board layout, debugging the Motor driver board, deciding on how to mount the board and do insulation, soldering pwm board for motor driver testing and debugging, soldering uart for software, making and routing wires and soldering power board for power distribution. For the software division, challenges we faced are: understanding the given libraries, debugging, ensuring smooth transition between functions when merging codes written by individual members, Bluetooth handling and manual control of the shooter robot.