Period One – Project Plan

Goals and Tasks for Botball 2019

Game Goals and Tasks	***Deadline***
1. Analyze and discuss game documents	1/13/19
a. Have everyone read the documents and mark things they deem as important	1/13/19
b. Team meeting to discuss documents and findings	1/13/19
c. Summarize all the important points from the game documents.	1/13/19
2. Develop Strategies	2/19/19
a. Define a comprehensive list of tasks to complete with the rules from the game document in mind	1/14/19
b. Start to combine multiple small tasks to get a rough idea of our final strategy	1/14/19
c. Start comparing every team member's strategies and pick out the best ones	1/16/19
3. Construct the Game Table	1/25/19
a. Dismantle the old game table and take inventory of the parts which can still be used	1/21/19
b. Create a list of all the missing parts and have our advisor order them.	1/21/19
c. Collect everyone from the team and start construction on the new table.	1/25/19

Robot Building Goals and Tasks	***Deadline***
1. Create rough sketches of the bots	1/25/19
a. Summarize our findings in the game documents, start to sketch bots that could fit our strategy	1/25/19
b. Label the sketches and discuss it with other team members to fix possible issues	1/25/19
c. Finish up the sketch and upload it to our drive	1/25/19
2. Build the Main Bot using the Create	2/8/19
a. Construct a bumper, a holding structure for the claw arm and a secure place for the wallaby to be mounted on	1/28/19
b. Construct a claw arm and a grabber, which fits on top	1/28/19
c. Improve grabber design based on the initial test results	2/8/19
d. Replace broken servos and finish up final construction	2/8/19

3. Build the Second Bot using the Metal Base	2/8/19
a. Construct a servo mount and an assembly to hold the caster marble.	1/28/19
b. Construct the grabber, which should be able to hold multiple poms and people.	1/28/19
c. Start construction on the grabbers mount while finishing construction on the grabber	1/28/19
d. Build mount for the wallaby	2/8/19
e. Add two tophat sensors to the front of the bot and finish up construction	2/8/19

Programming Goals and Tasks	***Deadline***
1. Update Libraries for the new Operating System	2/6/19
a. Update old code and rewrite our library	2/1/19
b. Start to compile the libraries and set them up for use with both Harrogate and remote-compile.	2/6/19
c. Complete testing of the libraries and prepare the Wallabies for the programmers	2/6/19
2. Finish the Main Bots Program	2/27/19
a. Determine the best strategy considering the bots current construction	2/8/19
b. Declare basic helper functions for basic movement and controlling servos	2/12/19
c. Program a detection function for the towers	2/27/19
d. Implement groups of smaller functions into the main function	2/27/19
e. Constantly work with the build team to readjust and optimize the construction	2/27/19
3. Finish the Second Bots Program	2/27/19
a. Determine the best strategy considering the bots current construction	2/8/19
b. Declare basic helper functions for basic movement and controlling servos	2/12/19
c. Write an efficient line follower function for each type of tape	2/27/19
d. Write larger functions and implement everything into the main function	2/27/19
e. Constantly work with the build team to readjust and optimize the construction	2/27/19

Documentation Goals and Tasks	*Deadline*
1. Get First Period Documentation done	2/19/19
a. Meet up to discuss this year's goals, schedule, tasks and conflict resolution	2/15/19
b. Collect information from the building and programming teams to define milestones	2/15/19
2. Get Second Period Documentation done	3/12/19
a. Meet with the building team and record the assignments video	3/8/19
b. Set up GitHub repos and accounts for the team	1/19/19
c. Communicate with the building team and gather commits from the GitHub repo	3/8/19
3.Get Third Period Documentation done	2/4/19
d. Make sure everyone receives the link and participates in the survey	2/3/19
e. Get together and discuss the lessons that were learned this year	2/3/19

Schedule Conflicts	*Deadline*
1. School Football Tournament – several team members not able to show up	30/1/19
2. Semester Break – school closed	9/02/19
3. Team Members birthday – no one able to show up	18/2/19

Team Organization

Schedule of Meeting Times:

Regional workshop – January – 18th and 19th
Regional tournament – April 8th to April 12th

Meeting times are determined by the availability of team members
Schedule for January – 18th, 19th, 21st, 22nd, 23rd, 24th, 25th, 29th, 30th
Schedule for February – 1st, 11th, 12th, 13th, 14th, 15th, 19th, 21st, 22nd
Schedule for March – 1st, 4th, 6th, 8th, 13th, 15th, 18th, 22nd, 25th, 26th, 27th, 28th
Schedule for April – 1st, 2nd, 3rd, 4th, 5th

Division of Labor:

Adult Team Leader:	Michael Stifter
Student Team Leader:	Alexander Brenner
Main Bot Robot Building Team:	Alexander Brenner, Karl Forstner, Sascha Nesterovic
Second Bot Robot Building Team:	Marko Miletic, Alexander Brenner, Jan Giefing
Main Bot Programmers:	Karl Forstner, Alexander Brenner, David Fischer
Second Bot Programmers:	Jan Giefing, Marko Miletic, David Fischer
Documentation Team:	David Fischer

Conflict Resolution:

Our team has been in school together for three years and there aren't that many conflicts to handle, to begin with. Solving issues is a very important part of early development so we want to fix most of ours as quickly as possible, while still coming to a solution that everyone agrees upon. If any real conflicts do come up, we agreed to solve them like this:

1. If two members are not able to decide on how to fix something a third member will step in and try to solve their issue. If the third member can't help someone else will have to step in until an agreement is made.
2. If step 1. didn't fix the issue the team leader is brought in to define the final decision.
3. Since we don't want to bother our adult team leader with small issues, we plan to only ask him for help with major conflicts. Resolving issues with no backlash for the involved members is important for us so no one feels disadvantaged and gets mad at the other members.

To avoid conflicts involving code we have come up with a syntax for GitHub commits and our own coding conventions. Maintaining a good codebase is very important so changes can be made more quickly later on. To make this as clear as possible to everyone in the team, we hung up this list of coding conventions on our whiteboard:

- Declare global variables for things like universal motor speed, servo position and timings. Make sure the variables are declared like this: #define MAX_SPEED 300
- Declare smaller functions for simple processes like lifting up the claw arm to make writing bigger functions to complete a task on the table easier to look back at and fix.
- Use the same number of tabs or spaces as the person who started writing the program.

Our rules for version control are as follows:

- Make sure to push every time one is done writing code and pull every time one starts to write something new.
- Write precise commit messages and use the following syntax:
    - add (variable/function/file)
    - remove (variable/function/file)
    - adjust (variable/function/file)

For Example: "add SERVO_DEFAULT, remove lift_servo(), adjust move_servo()"