Team Minutes for **Team 7**

Meeting Date: *Put date here*	Start Time: *Record time meeting started* End Time: *Record meeting end time* Summary of Meeting
1. Attendance	*Record members present (if absent, include reasons and whether teammates were notified in advance).*
2. Purpose of Meeting	
3. Discuss work completed since last meeting.	*Team members report on what has been accomplished. Record notes of those reports here.*
4. Summarize work completed during meeting	*Summarize discussion and work accomplished.*

5. Review action items to be completed after meeting	*Who will do what by when?*

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Team Members' Names
Jonah Bertolino
Hunter Burnham
Joseph Kirby
Caden Nubel
Joel Shorey

Meeting 1

Meeting Date: *2/12/2024*	Start Time: 2:00 pm End Time: 3:00 pm Summary of Meeting
1. Attendance	*All members attended*
2. Purpose of Meeting	*Start of project meeting*
3. Discuss work completed since last meeting.	*Jonah Bertolino: Start of project, no previous work*
	Hunter Burnham: Start of project, no previous work
	Joseph Kirby: Start of project, no previous work
	Caden Nubel: Start of project, no previous work
	Joel Shorey: Start of project, no previous work

7. Recording secretary	*Hunter Burnham*
4. Summarize work completed during meeting	*Discussed Objectives for the next week, assigned tasks to each group member, and discussed logistics on how to work with each other over the course of the project. Started discussing how to go about completing each task.*
5. Review action items to be completed after meeting	*Jonah Bertolino: Determining Quadrant of Aruco Marker*
	Hunter Burnham: Implement LCD Threading, Communication with Arduino
	Joseph Kriby: Establish GitHub on Pi, Assist Hunter and Jonah
	Caden Nubel: Create and implement PI controller
	Joel Shorey: Create and implement PI controller
6. Schedule next meeting	*Monday 2/19/2024 at 12:00 pm*

Meeting 2

Meeting Date: *Put date here*	Start Time: 1:30 pm End Time: *2:30 pm* Summary of Meeting
1. Attendance	*All members attended*
2. Purpose of Meeting	*Talking about documentation and wrapping up mini project.*
	Jonah Bertolino: Interfaced threading code and aruco quadrant detection code/developed code

7. Recording secretary	*Joseph Kirby*
3. Discuss work completed since last meeting.	*Hunter Burnham: Established the threading and I2C communication between pi and Arduino*
	Joseph Kirby: Established Github on Pi, worked on aruco detection and handling of markers
	Caden Nubel: Made the PI controller code
	Joel Shorey: Matlab simulation for PI controller, helped interface computer vision with controls
4. Summarize work completed	*Discussed all of our tasks that we completed since last week, talked about next steps for completing documentation and*
during meeting	*cleaning up code, preparing for end of week assignments*
5. Review action items to be completed after meeting	*Jonah Bertolino: Complete documentation, update Github*
	Hunter Burnham: Complete documentation, update Github
	Joseph Kirby: Complete documentation, update Github
	Caden Nubel: Complete documentation, update Github
	Joel Shorey: Complete documentation, update Github
6. Schedule next meeting	*Monday Feb 26, 2:00pm*

Meeting 3

Meeting Date: 2/28/2024	Start Time: *2:00 pm* End Time: *4:00 pm* Summary of Meeting
1. Attendance	*Jonah Bertolino, Joseph Kirby, Hunter Burnham, Caden Nubel, Joel Shorey*
2. Purpose of Meeting	*Pi group discussed how to find angle from camera to Aruco marker. Arduino group is figuring out how to get the robot to drive in a straight line.*
3. Discuss work completed since last meeting.	*Jonah Bertolino: Figured out how calibrate the camera.*
	Hunter Burnham: Put some headers in Mini Project code. Worked on finding angle from camera to Aruco marker using camera calibration
	Joseph Kirby: Worked on finding angle from camera to Aruco marker using camera calibration
	Caden Nubel: Worked on the code to get the robot to drive straight and thought abstractly about how to decompose the problems.
	Joel Shorey: Finished up all the Mini project documentation code. Started working on Demo 1 with Caden.
4. Summarize work completed during meeting	*Pi group discussed what we were going to work on moving forward, such as finding the angle from the center of the screen to the Aruco marker. Arduino group discussed varios motor control problems.*
5. Review action items to be completed after meeting	*Jonah Bertolino: Find angle from camera to Aruco marker*
	Hunter Burnham: Find angle from center of screen to the Aruco marker on the screen
	Joseph Kirby: Find angle from center of screen to the Aruco marker on the screen

	Caden Nubel: To have the robot drive in a straight line.
	Joel Shorey: To have the robot rotate around a fixed point
6. Schedule next meeting	*Next Monday at 2:00 pm*
7. Recording secretary	*Jonah Bertolino*

Meeting 4

Meeting Date: 3/8/2024	Start Time: *1:40 pm* End Time: *3:00 pm* Summary of Meeting *Completed Demo 1*
1. Attendance	*Jonah Bertolino, Joseph Kirby, Hunter Burnham, Caden Nubel, Joel Shorey*
2. Purpose of Meeting	*Pi group discusses how they have a backup plan for finding the angle using math. Today they need to figure out how to find the angle using calibration.*
3. Discuss work completed since last meeting.	*Jonah Bertolino: Found the horizontal FOV while working with Joseph of the camera so we could correctly find the angle with 0.3 degrees using math.*
	Hunter Burnham: Found the angle using calibration using a camera matrix
	Joseph Kirby: Found the horizontal FOV while working working with Jonah using math. Also assisted Hunter with coding the calibration.
	Caden Nubel: Rewrote the entire code to implement a forward velocity and rotational velocity vector. Also tuned controllers.

	Joel Shorey: Debugged the controllers. Worked on debugging the first implementation strategy. Put together turning and moving forward code.
4. Summarize work completed during meeting	*We finished up the project and just need to complete a video presentation.*
5. Review action items to be completed after meeting	*Jonah Bertolino: Create a video presentation of camera finding angle*
	Hunter Burnham: Create a video presentation of camera finding angle
	Joseph Kirby: Create a video presentation of camera finding angle
	Caden Nubel: Finish tuning and figure out how to drive straight and rotate properly then create a video presentation.
	Joel Shorey: Finish tuning and figure out how to drive straight and rotate properly then create a video presentation.
6. Schedule next meeting	*Monday at 2:00 pm*
7. Recording secretary	*Hunter*

Meeting 5

Meeting Date: 3/15/2024	**Start Time:** *1:40 pm* **End Time:** *3:00 pm* **Summary of Meeting** *Started Demo 2*
1. Attendance	*Jonah Bertolino, Joseph Kirby, Hunter Burnham, Caden Nubel, Joel Shorey*

2. Purpose of Meeting	*Discuss the beginning of Demo 2*
3. Discuss work completed since last meeting.	**Jonah Bertolino:** *Completed documentation for Demo 1. Also demoed Demo 1.*
	Hunter Burnham: *Completed documentation for Demo 1. Also demoed Demo 1.*
	Joel Shorey: *Completed documentation for Demo 1. Also demoed Demo 1.*
	Joseph Kirby: *Completed documentation for Demo 1. Also demoed Demo 1.*
	Caden Nubel: *Completed documentation for Demo 1. Also demoed Demo 1.*
4. Summarize work completed during meeting	*Started on Demo 2. Agreed that the robot should turn in 30 degree angles looking for the Aruco marker. Once the marker was detected, we would send the angle from the Pi to the Arduino. The robot would then move forward or go around the marker accordingly.*
5. Review action items to be completed after meeting	**Jonah Bertolino:** *Work on sending information from the Pi to the Arduino.*
	Hunter Burnham: *Work on sending information from the Pi to the Arduino.*
	Joel Shorey: *Make the robot drive in a circle. Also debug random errors involved with the robot.*
	Joseph Kirby: *Work on sending information from the Pi to the Arduino.*

	Caden Nubel: *Make the robot drive in a circle. Also debug random errors involved with the robot.*
6. Schedule next meeting	*3/25/2024 at 1:40 pm*
7. Recording secretary	*Caden*

Meeting 6

Meeting Date: 3/25/2024	**Start Time: *1:40 pm* End Time: *3:00 pm* Summary of Meeting *Continued to work on Demo 2***
1. Attendance	*Jonah Bertolino, Joseph Kirby, Hunter Burnham, Caden Nubel, Joel Shorey*
2. Purpose of Meeting	*Discuss how the work has been going on in Demo 2*
3. Discuss work completed since last meeting.	***Jonah Bertolino:*** *Reviewed the requirements for Demo 2 and made sure we were on track to complete before the deadline.*
	Hunter Burnham: *Reviewed the code we had written so far and started to determine how to send bytes over I2C.*
	Joel Shorey: *Made the robot drive in a circle. Also resolved some errors with the robot movement.*
	Joseph Kirby: *Reviewed the requirements for Demo 2 and made sure we were on track to complete before the deadline.*
	Caden Nubel: *Made the robot drive in a circle. Also resolved some errors with the robot movement.*

4. Summarize work completed during meeting	*Discussed sending floats over I2C. Pi worked on sending a Boolean on whether the marker is detected or not, then send the angle, then send a number to tell the robot to stop. Arduino worked on receiving this info and turning accordingly.*
5. Review action items to be completed after meeting	**Jonah Bertolino:** *Figure out how to send floats over I2C. Also figure out the camera exposure.*
	Hunter Burnham: *Figure out how to send floats over I2C. Also figure out the camera exposure.*
	Joel Shorey: *Write code to receive a float from the Pi. Also write code to go through the motions involved in Demo 2.*
	Joseph Kirby: *Figure out how to send floats over I2C. Also figure out the camera exposure.*
	Caden Nubel: *Write code to receive a float from the Pi. Also write code to go through the motions involved in Demo 2.*
6. Schedule next meeting	*3/29/2024 at 1:40 pm*
7. Recording secretary	*Joseph*

Meeting 7

Meeting Date: *4/1/2024*	Start Time: *1:40 pm* End Time: *3:00 pm* Summary of Meeting *Worked on wrapping up Demo 2*
1. Attendance	*Jonah Bertolino, Joseph Kirby, Hunter Burnham, Caden Nubel, Joel Shorey*
2. Purpose of Meeting	*Wrap up Demo 2*

3. Discuss work completed since last meeting.	**Jonah Bertolino:** *Found an issue with the camera and worked with Joseph to fix it.*
	Hunter Burnham: *Worked on the code. Still working on sending floats over I2C.*
	Joel Shorey: *Figured out how to receive floats over I2C. Also wrote code to go through the motions involved in Demo 2.*
	Joseph Kirby: *Found an issue with the camera and worked with Joseph to fix it.*
	Caden Nubel: *Figured out how to receive floats over I2C. Also wrote code to go through the motions involved in Demo 2.*
4. Summarize work completed during meeting	*Jonah and Joseph resolved issues related to the camera by figuring out the camera we were using had high exposure and eventually replacing it with a better camera. Hunter continued to debug his code. Caden and Joel worked with Hunter to integrate the two subsystems.*
5. Review action items to be completed after meeting	**Jonah Bertolino:** *Finish the code and start documentation.*
	Hunter Burnham: *Finish the code and start documentation.*
	Joel Shorey: *Debug random errors that sometimes occur with the robot.*
	Joseph Kirby: *Finish the code and start documentation.*
	Caden Nubel: *Debug random errors that sometimes occur with the robot.*

6. Schedule next meeting	*4/8/2024 at 1:40 pm*
7. Recording secretary	*Jonah Bertolino*

Meeting 8

Meeting Date: 4/8/2024	Start Time: *1:40 pm* End Time: *3:00 pm* Summary of Meeting *Completed Demo 2 and started Demo 2 Documentation*
1. Attendance	*Jonah Bertolino, Joseph Kirby, Hunter Burnham, Caden Nubel, Joel Shorey*
2. Purpose of Meeting	*To discuss Demo 2 results and finish up documentation, including writing headers for all our code, completed team agenda and team minutes.*
3. Discuss work completed since last meeting.	*Jonah Bertolino:* Finished and demoed Demo 2.
	Hunter Burnham: Finished and demoed Demo 2.
	Joel Shorey: Finished and demoed Demo 2..
	Joseph Kirby: Finished and demoed Demo 2.
	Caden Nubel: Finished and demoed Demo 2.
4. Summarize work completed during meeting	*Jonah completed team minutes while Joseph completed team agenda. Hunter, Joel, and Caden worked on documenting their code and making sure headers were written and formatted correctly.*

5. Review action items to be completed after meeting	**Jonah Bertolino:** *Look at and review Final Demo requirements.*
	Hunter Burnham: *Look at and review Final Demo requirements.*
	Joel Shorey: *Look at and review Final Demo requirements.*
	Joseph Kirby: *Look at and review Final Demo requirements.*
	Caden Nubel: *Look at and review Final Demo requirements.*
6. Schedule next meeting	*4/15/2024 at 1:40 pm*
7. Recording secretary	*Joel*