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Team 3

Daily report

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Today's Progress

1. Roles of Team Members

1.1 Hardware Sub-team

Ezzeldin Fekry Abdelsalam

- I attempted to design the PCB as a single-layer board, but the limited dimensions available from Makers or Electra made this challenging. I also considered using vias and jumper wires; however, this approach posed significant risks. To ensure the circuit's reliability, I decided to remove the L293D and ACS712 integrated circuits. I will proceed with fabricating the microcontroller circuit tomorrow and will utilize modules instead.

Nour Mohamed Ramadan

- Tried to install different version of proteus to run the code on the microcontroller.
- Searched for the connections of the voltage and current sensors to the ATmega328P.
- Searched for the files needed to fabricate our PCB.
- Tried to help ezzeldin to bring him some data to ensure the connections he made on Altium is correct.

1.2 Firmware Sub-team

Omar Mohamed Hafez

- Implemented the PID control to autonomous motion function

```
void Auto_motion(){
  Forward_distance();
  Left_distance();
  Right_distance();
  Forward_speed();
  delay(250);
  if(distance_F<35){
    error_F = setpoint_F - distance_F;

  // Calculate the PID terms
  integral_F += error_F * ki_F; // Integral term (0.1 is the time step in seconds)
    derivative_F = (error_F - last_error_F) / 0.1; // Derivative term (0.1 is the time step in seconds)

  // Calculate the PID output
    output_F = (kp_F * error_F) + (ki_F * integral_F) + (kd_F * derivative_F);
    distance_F=output_F;
  // Update the last error
    last_error_F = error_F;
    move_back();
```

And the same for the rest of sensors.

- Searched on how to send data from serial to GUI but still searching.

1.3 Software Sub-team

Nour Zeidan

- Successfully connected GUI to the video stitching task by clicking on computer vision: video stitching button it executes other python files done by Omnia.
- Started researching on stereo vision as me and Omnia are going to work on it.
- Made the frontend of autonomous car control and connected it to the GUI.
- Tried searching to find how to receive voltage, current readings to the autonomous mode but still searching and this was done with Omar Mohamed.

Omnia Farouk

- Implemented Calibration process in stereo vision
- Calculates translation, rotation, matches, and all the points that will be needed further in the Task's Algorithm