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# Team 3

## Daily report

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Prepared by :

**Ezzeldin Fekry**  
**Nour Rizk**  
**Nour Zeidan**  
**Omar Hafez**  
**Omnia Farouk**

## 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.

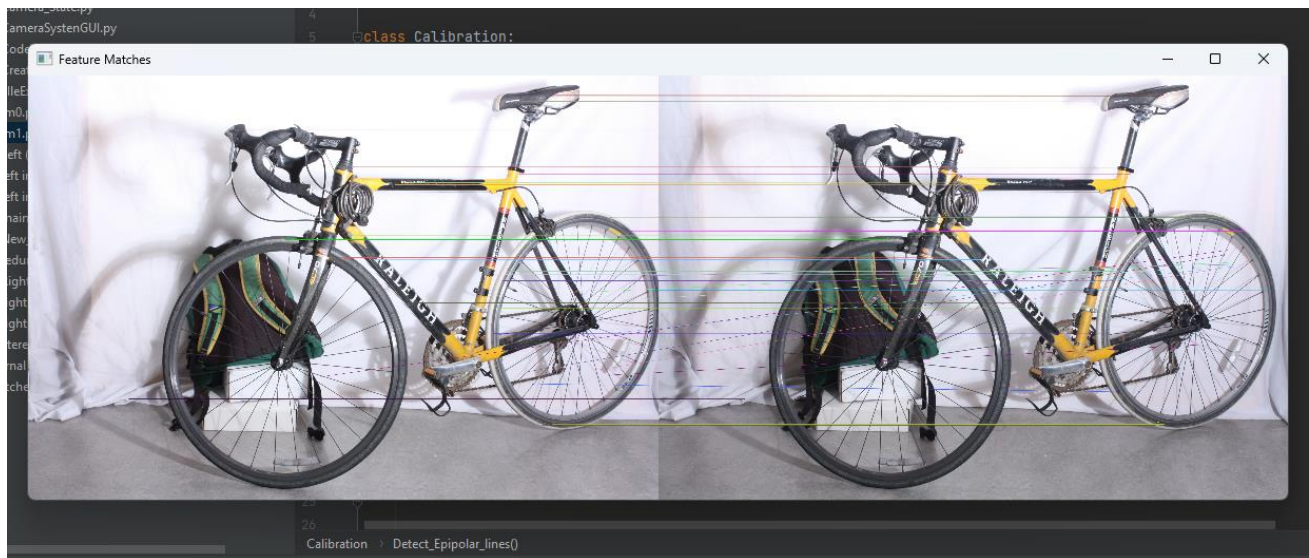
#### 1.3 Software Sub-team

## 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



```
File Edit View Navigate Code VCS Help MegaProjectTest - StereoVision.py
Project
  MegaProjectTest
    venv
    CameraSystemGUI.zip
    CameraSystemGUI.py
    Camera_State.py
    CodeWithoutThreading.py
    CreateViewThread.py
    FileExplorerDialogue.py
    im0.png
    im1.png
Run: StereoVision
Fundamental Matrix:
[[ 3.19801548e-09 -5.4281212e-06  5.78368188e-03]
 [ 5.64864353e-06 -2.79355430e-08  2.61928091e-02]
 [-5.91338410e-03 -2.71256920e-02  1.00000000e+00]]
Rotation Matrix:
[[ 9.99147366e-01 -7.58715675e-04 -4.12791108e-02]
 [ 8.01124700e-04  9.99999168e-01  1.01084034e-03]
 [ 4.12783155e-02 -1.04304818e-03  9.99147143e-01]]
Translation Vector:
[[ 0.82991957]
 [-0.00780083]
 [-0.55782851]]
Process finished with exit code 0
Packages installed successfully: Installed packages: 'opencv-webcam-script' (today 2:25 PM)
```