14/8/2024

Team 3

Daily report

Prepared by :

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Omar Hafez
Omnia Farouk

1.1 Hardware Sub-team

Ezzeldin Fekry Abdelsalam

- **Searched with Nour Mohamed on ACS712 5A current sensor and methods for circuit protection.**
- **Added the Voltage Regulator and Motor driver circuits to the schematic sheet shown in Figure (a).**

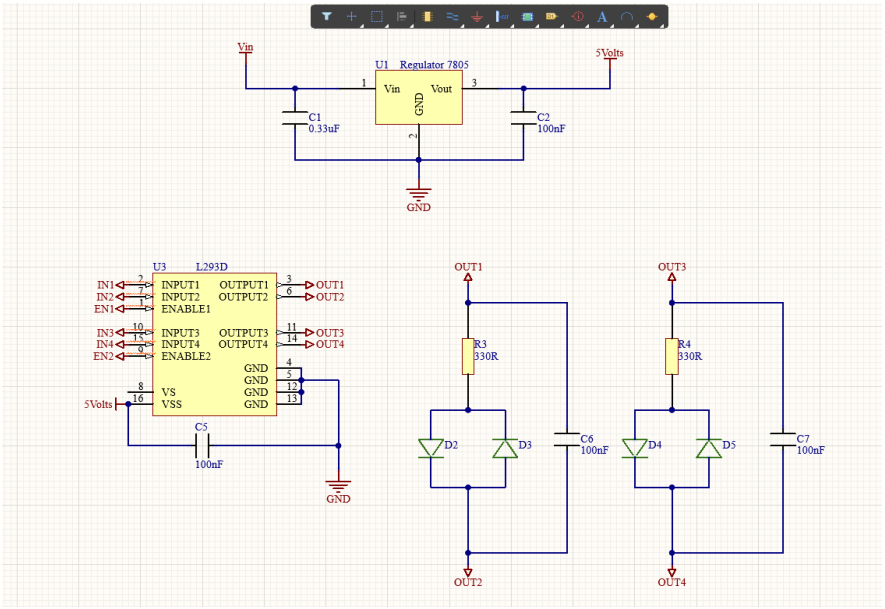


Figure (a)

- **Added 3 more components' footprints shown in Figure (b).**

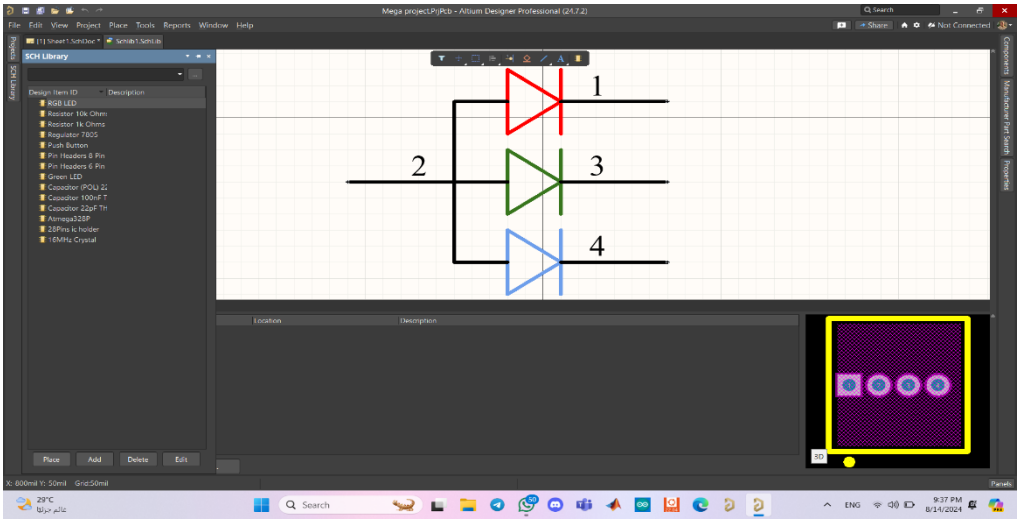
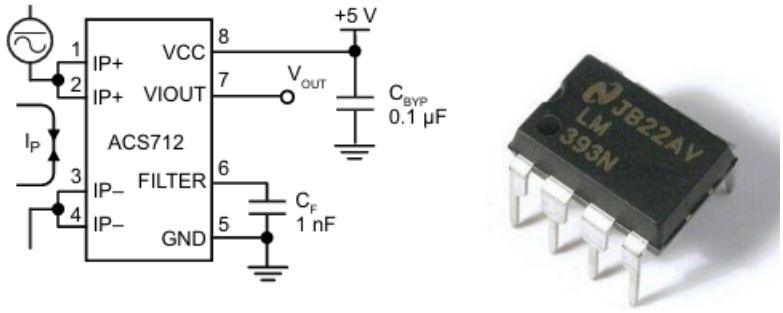


Figure (b)

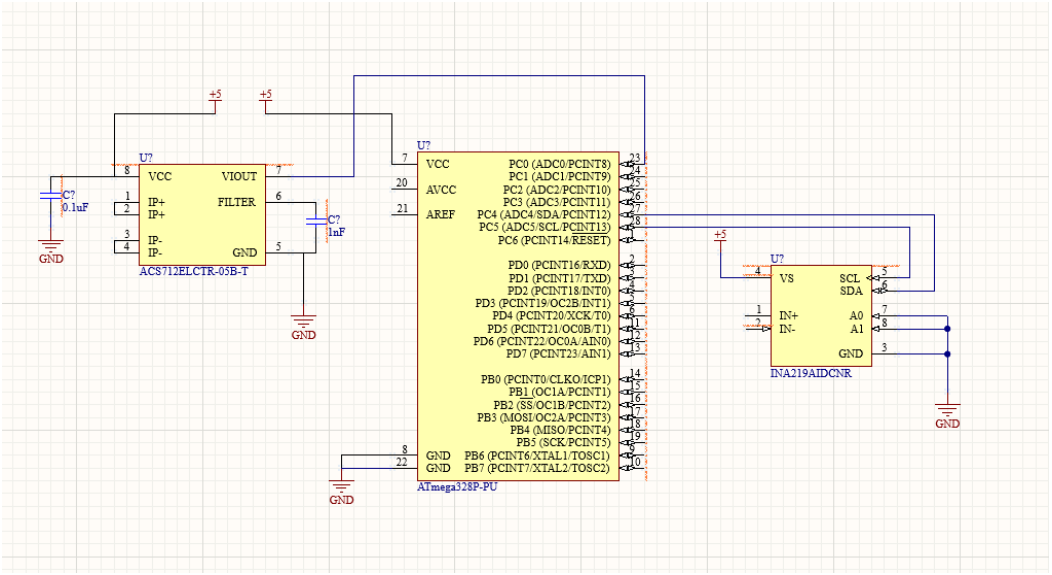
Nour Mohamed Ramadan

- Today, I searched for the whole protection of the microcontroller (ATmega328p). And made a report of it.

- Also searched for the voltage sensor and the current sensor we need to use with the microcontroller with the help of Ezzeldin.



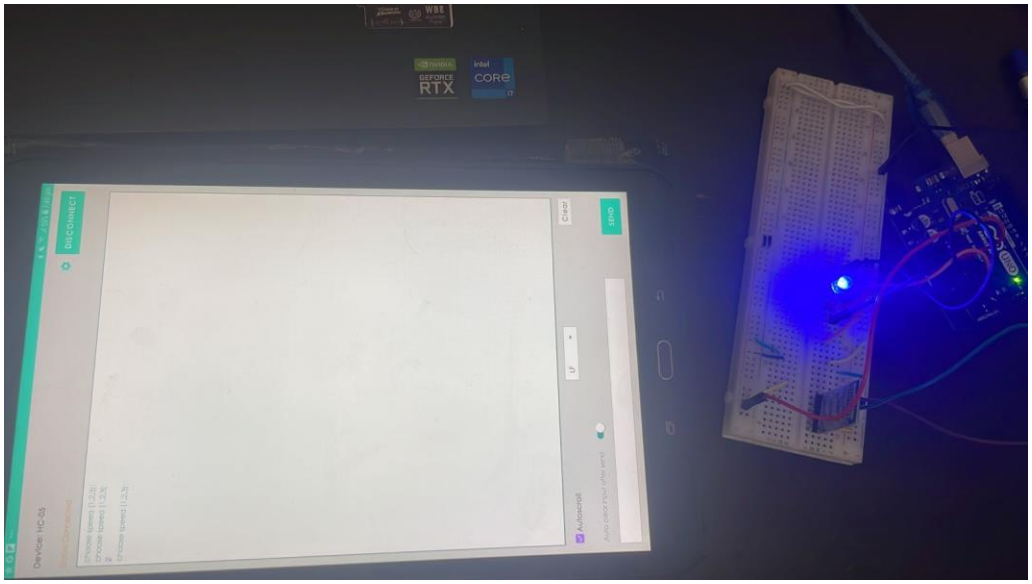
- Made the schematic of the connections between the sensors and the ATmega328p.



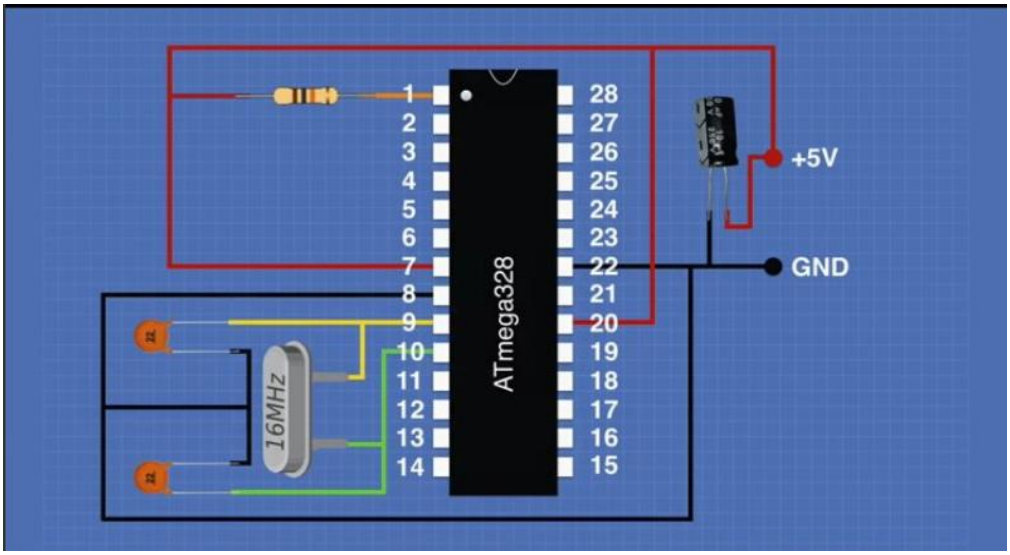
1.2 Firmware Sub-team

Omar Mohamed Hafez

- Connected the Bluetooth module and tested it on a simple function (speed selection) to check the connectivity before connecting the IDE to the GUI



- Searched on ways to run the code to Atmega328 (with bootloader)and here is the steps I found :
    1. First we need to select Arduino as ISP from examples in file menu
    2. Select programmer “AVRSP mkll” from tools menu
    3. Upload the example to the Atmega328
    4. Connect Atmega328 as shown :



    5. Then connect the used pins from real Arduino to the equivalent to it on the IC
    6. Copy this link (https://mcudude.github.io/MiniCore/package_MCUdude_MiniCore_index.json) to additional board manager URLS in preferences from file menu
    7. Go to tools → Board manager→ search for “Minicore”→install the library
    8. Select board Atmega328
    9. Check that the clock is external 16MHz ,BOD 2.7V ,EEPROM retained , compiler is LTO enable , BOOTLoader “yes” , programmer ARDUINO as ISP
    10. Then open the file and upload it using programmer
    11. Then disconnect connections between IC and Arduino and build our circuit

This are the steps to run the Ic with BOATloader .

- I’ve ran a simple code for a simple function to test the atmega and it worked and will complete it in the next day

1.3 Software Sub-team

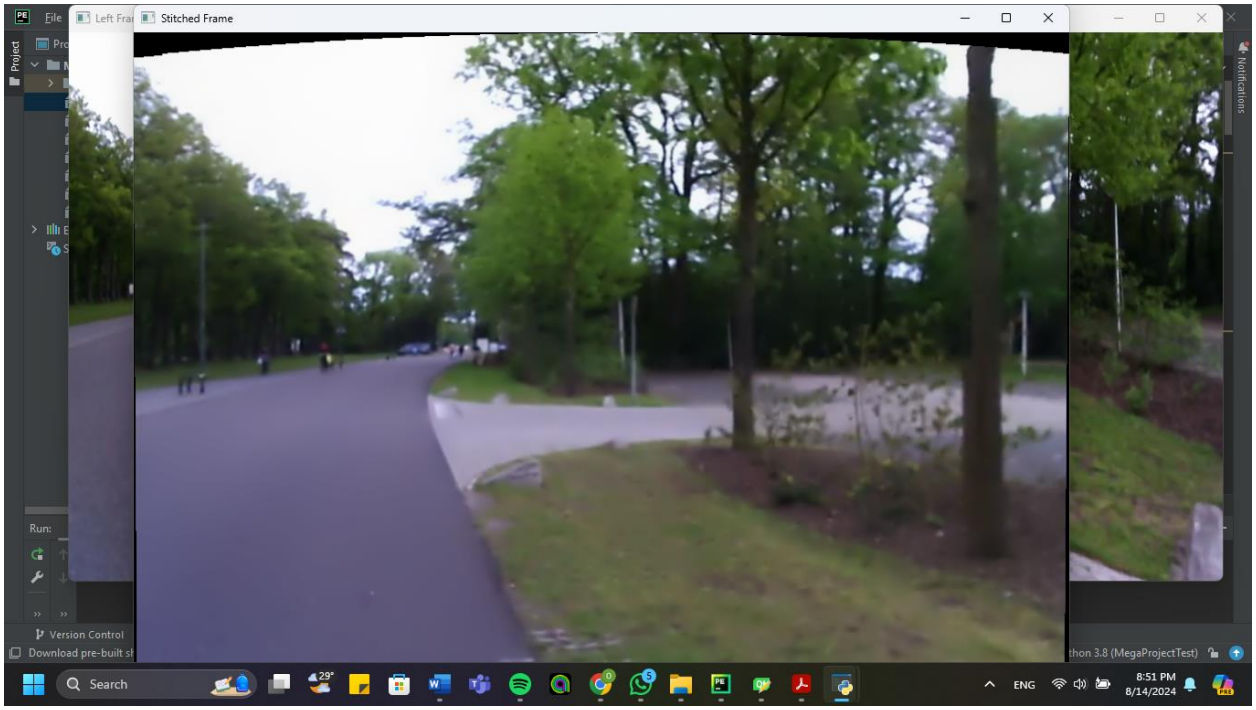
Nour Zeidan

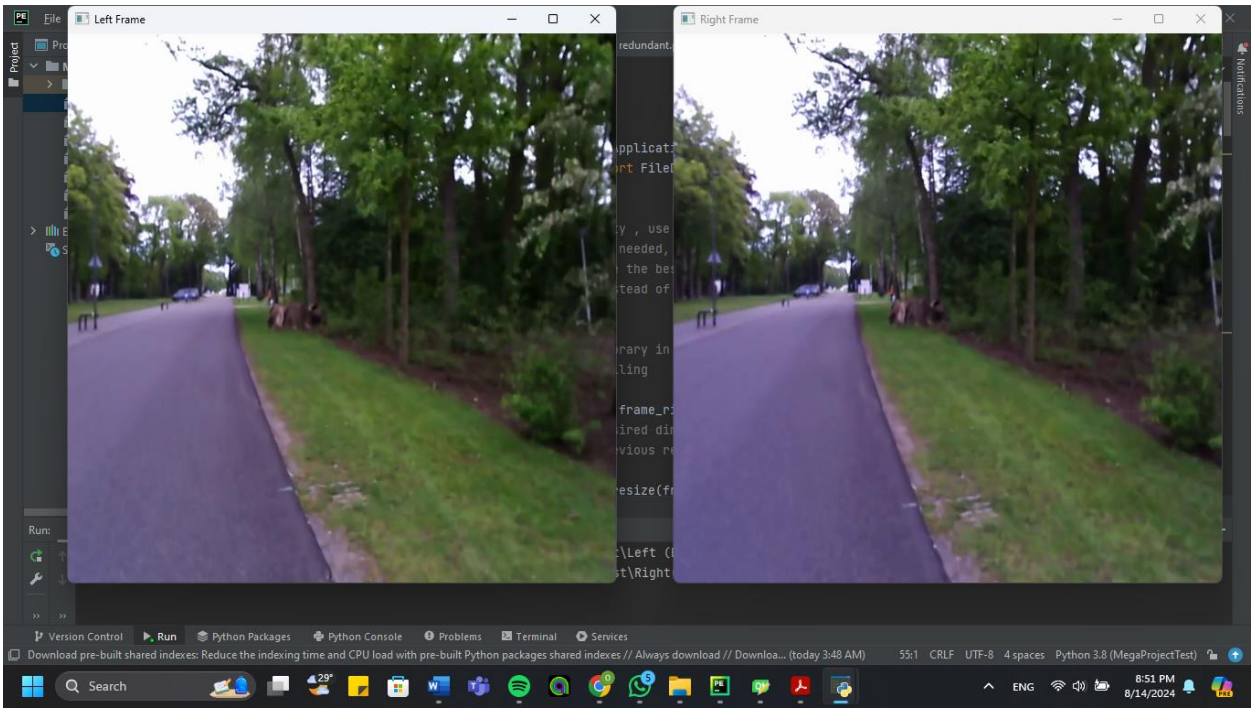
- Started Searching for how to control the car using GUI in the manual mode.

Omnia Farouk

➢ Video Stitching Algorithm progress

- Implemented Multithreading for code efficiency and optimization
- Started on the GUI of the display (CameraSystemGUI) but is not finished yet
- Finished Stitching videos into a one stitched view ,but unfortunately the display of the video is not smooth enough nor is it consistent , but I will use it , as it is the only method that gave a relatively correct output of the stitched view
- Used Stitching built-in functions in OpenCV for the stitching algorithm
    - ❖ cv2.stitcher.create()
    - ❖ stitcher.stitch()
- Added some error Handling exceptions in code for error crashes

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