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Team 3

Daily report

Prepared by :

Ezzeldin Fekry

Nour Rizk

Nour Zeifan

Omar Hafez

Omnia Farouk

Today's Progress

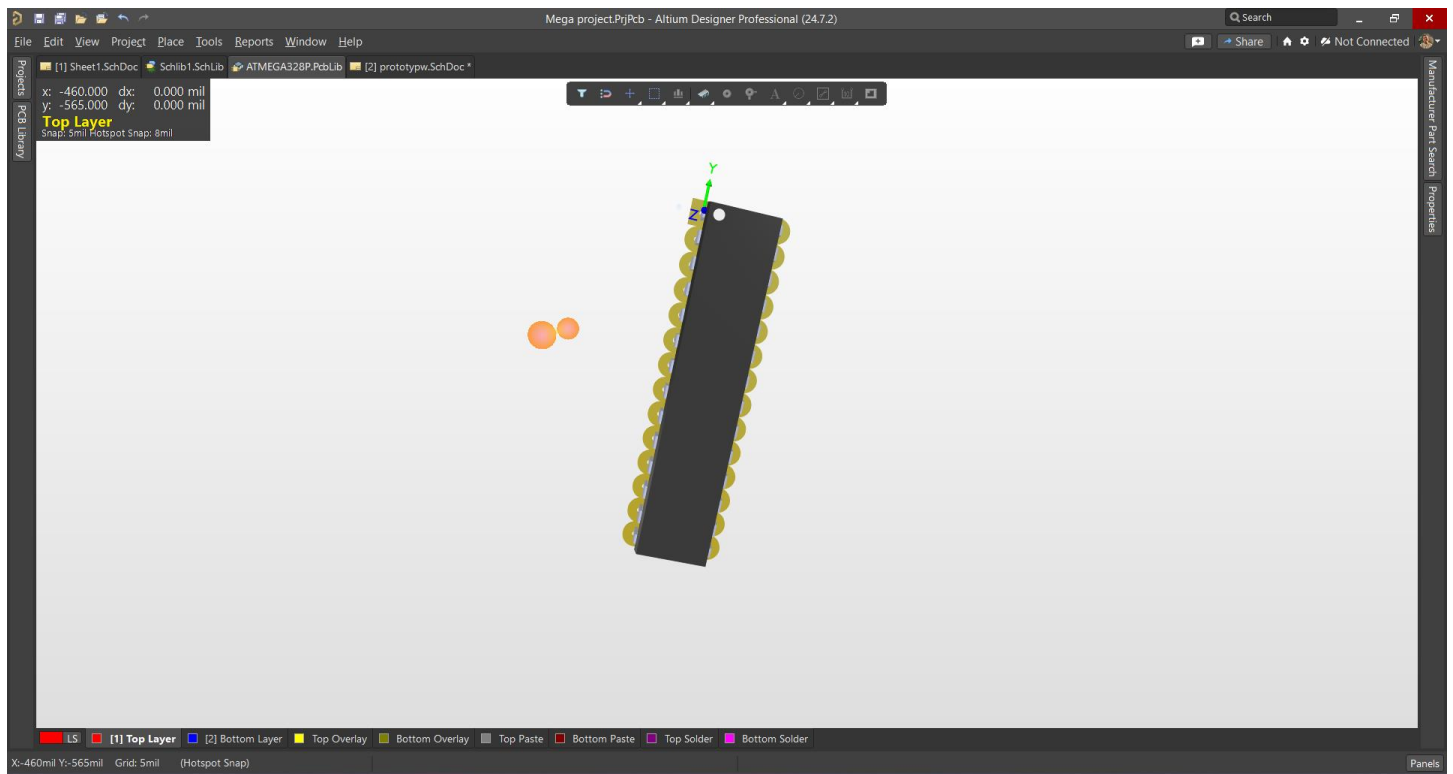
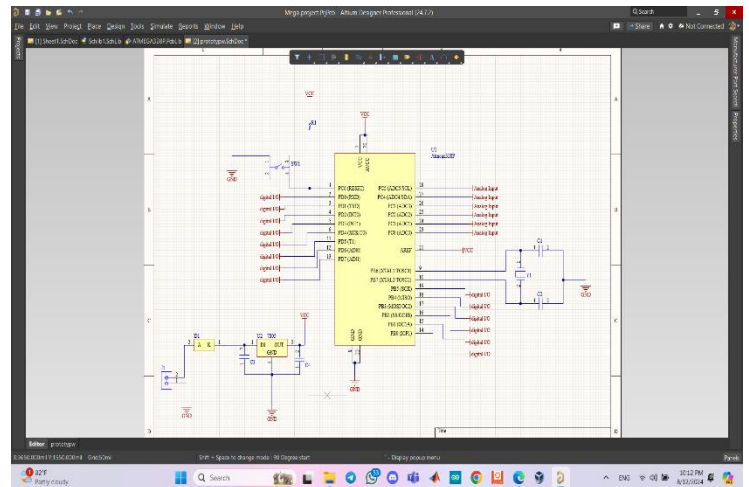
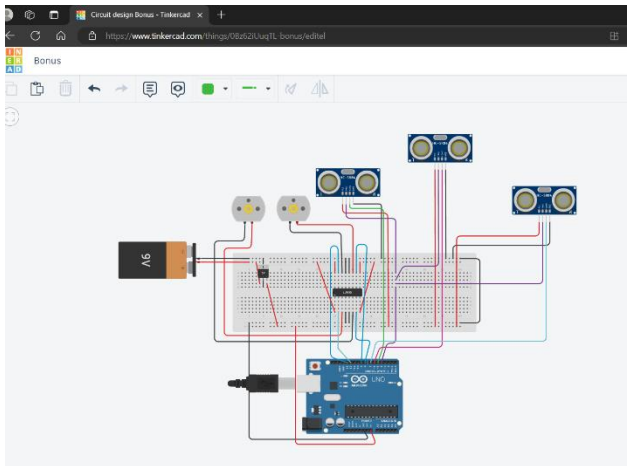
1. Roles of Team Members

1.1 Hardware Sub-team

Ezzeldin Fekry Abdelsalam

Today, our team met on discord to divide roles and responsibilities. As a member of the Hardware sub-team, I collaborated with Nour Rizk to compile a list of components. My specific tasks included:

- Providing the firmware team with a Tinkercad link to a prototype circuit.
- Designing the schematic for the ATmega328P microcontroller.
- Creating the footprint for the ATmega328P.
- Compiling the daily report for my team.



Today we divided our roles according to the sub teams through a small meeting. First, Ezzeldin and I list the components we need. And my role is to search for the details about these components like the input current and voltage, output current and voltage maximum and minimum current and voltage and so on. And a small summary about these components.

The Components.

1. We need three **Ultrasonic Sensors** (HC-SR04): it is used for non-contact distance measurements. This sensor operates by emitting an ultrasonic sound pulse and measuring the time it takes for the echo to return to calculate the distance to an object. This sensor provides 2cm to 400cm of non-contact. This sensor includes a transmitter, receiver, and a control circuit. There are four pins Vcc , Trig, Echo(receive) and GND.

-Operating Voltage: 5 Volt DC.

-Operating Current: 15 mA.

-Operating Frequency: 40 HZ.

-Measuring Angle: [15-30].

-Ranging Distance: [2cm-4m].

-Trigger input signal: 10us TTL pulse.

-Echo Output Signal: input TTL lever signal and the range in proportion.



2. we need two **DC Geared Motor**: this motor has a double-shaft. it is combination of a motor and gearbox. The addition of a gearbox to a motor reduces the speed while increasing the torque output.

-the dual shaft turns up to about 600 rpm.

-Powered by [3,12] volts.

-draws an average of 190 mA of current (max. 250 mA).

-Speed: 600 (+,-) 10 rpm at 12 volt.

-Gearbox: 1:48



3. **L293D**: 2-channel motor driver IC used for controlling the direction and the speed of two DC motors simultaneously and independently. It includes built-in diodes to protect against back EMF from the motors. It also includes thermal shutdown protection to prevent damage due to overheating. The 4 center pins connected and used for heatsinking.

-Output Current: each channel can deliver up to 600 mA of continuous current.

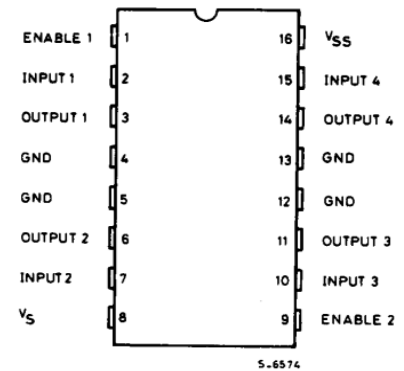
-Maximum current: 1.2 Amp.

-Input Voltage: 7 Volt.

-Enable Voltage: 7 Volt.

- V_S : [4.5,36] Volt.

- V_{SS} : [4.5,36] Volt.



4. **Nylon Caster Wheel** (free moving): the wheel made of nylon, which is useful to resist wear, abrasion, and chemicals.

-Light Weight.

-Non marking the ground.

-Cost Effective.

-Load Bearing: 10 kg.



5. **RGB LED** : combine red, green, and blue light to produce a wide range of colors and can be controlled using PWM to adjust the brightness of each color channel.

Red: Forward Voltage: [1.8,2.2] volt.

Forward Current: 20 mA.

Reverse Current: 10 μ A.

Operating Temperature: [-25,85] c.

Green: Forward Voltage: [3,3.4] volt.

Forward Current: 20 mA.

Reverse Current: 10 μ A.

Operating Temperature: [-25,85] c.

Blue: Forward Voltage: [3,3.4] volt.

Forward Current: 20 mA.

Reverse Current: 10 μ A.

Operating Temperature: [-25,85] c.

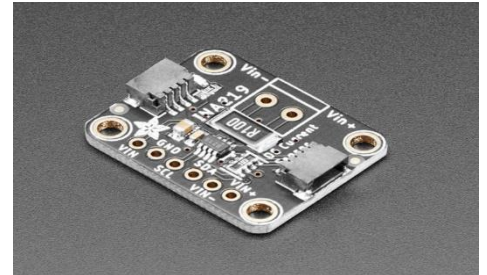
And for all the maximum current is 30 mA.



6. We need a voltage sensor and current sensor so I got **INA219** which can play the two roles.

-this sensor can measure both voltage and current simultaneously.it is exactly high-side current which measures the current flowing through a load by placing the current sensor in the positive supply line (i.e., between the power source and the load)

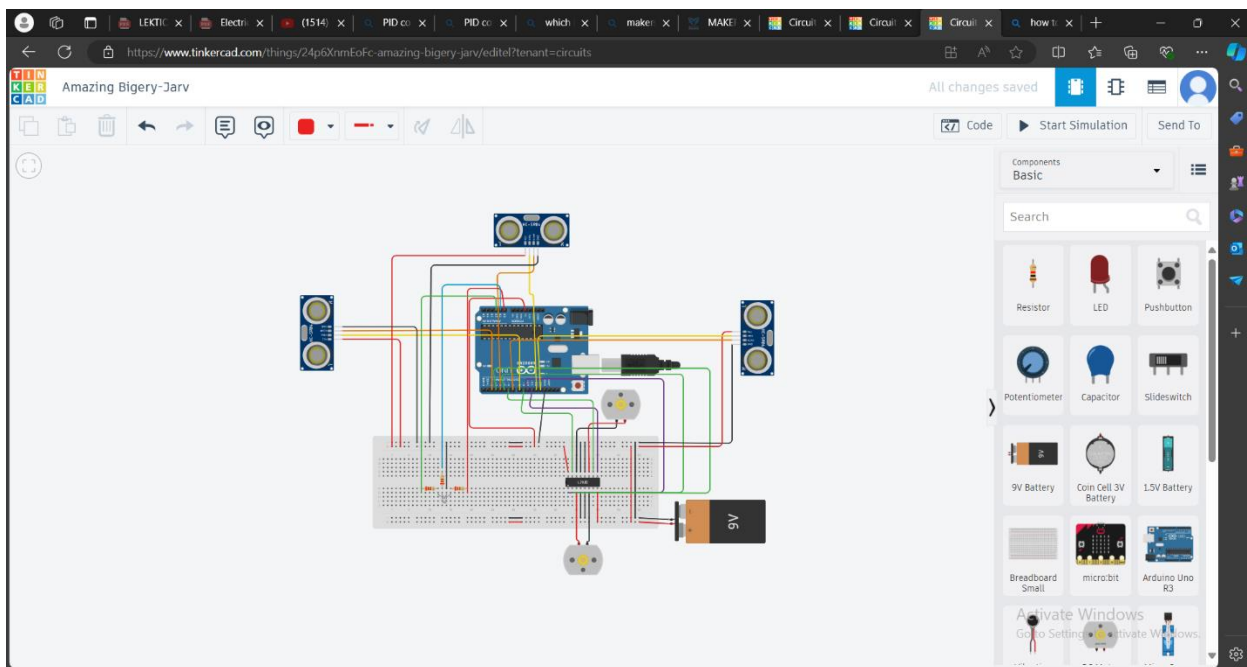
- Input Current to Any Pin: 5mA.
- Operating Temperature [-40,125] c.
- Power Consumption: typical 100 uA.
- Supply Voltage: 6v
- Power Supply Vs: [3,5.5] Volt.
- Through I2C Communication.



1.2 Firmware Sub-team

Omar Mohamed Hafez

- Adjusted the basic circuit provided by the Hardware team to test each function



- Coded function to control speed of motor and showing speed on LED and used the serial monitor to test it (instead GUI for now)

Tinkercad Link: <https://www.tinkercad.com/things/24p6XnmEoFc-amazing-bigery-jarv>

1.3 Software Sub-team

Nour Zeidan

Today, I started by making the frontend of the GUI by inserting pushbuttons each one is for a different feature and a label to let the user choose easily and got help from Omnia Farouk. A picture of the frontend is shown down below:



Omnia Farouk

Points to be done in video stitching process

- 1) create a file explorer to choose video passes and name them
- 2) for error handling, show only format of video files, ensure the pass isn't empty.
- 3) for better handling show more than 1 video format for example (.MP4, AVI, MOV)
- 4) Multithread to display left, right and stitched views
- 5) the easy ability to create a fourth thread for another camera feed
- 6) use OOP principles

Today's progress

- 1) creating a file explorer dialogue to choose file video
- 2) creating a text bar to display the video pass (may be deleted later)
- 3) limiting formats to 3 video formats mentioned
- 4) adding an all files option in file filter for accessibility

