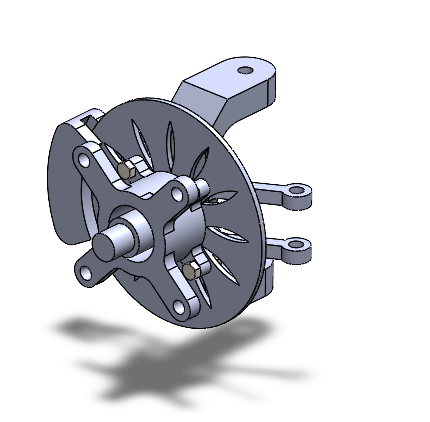
HR 2 BREAKDOWN

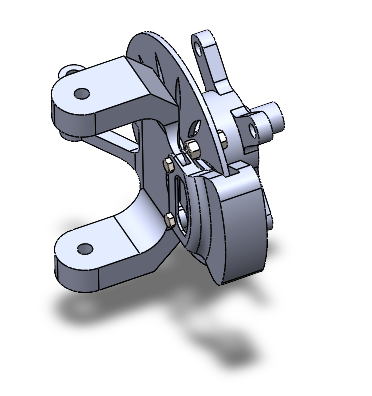
# TEAM: [21Spr05-SAEBaja]

**Figure 1: Steering System**

**Figure 2: Suspension System**



**Figure 3: Isometric View of Braking System: In this figure, you can see all the parts needed to have a complete assembly for the brake system. It has fasteners, brake pad, disk, and etc.**



**Figure 4: Another view of Braking System: In this figure we would clarify all the parts that we have done for the brake system.**

**Figure 5: Complete Assembly View**

**Figure 6: Another View of Complete Assembly**

The following are the Action Items each person completed between Hardware Review 1 and Hardware Review 2:

**Team Member: Omer Alamoudi**

| Action Item | **Date Completed** | **Result/Proof of Completion** |
| --- | --- | --- |
| Brake Disk Thermal Calculations | 09/30/2021 | The braking time remains constant and the power generated is calculated again which comes out to be 483 W greater than the one calculated in Hardware Review I. 483 W is the difference between Hardware review I and II. |
| Brake Disk Thermal FEA | 10/4/2021 |  |
| Brake Disk Caliper Design | 10/08/2021 |  |
| Fasteners Design | 10/08/2021 |  |
| Final Brake Assembly CAD that has all the parts needed. | 10/10/2021 |  |

**Team Member: Musaed Fraidoun**

| Action Item | **Date Completed** | **Result/Proof of Completion** |
| --- | --- | --- |
| Brake Force Calculations |  | The braking force calculated is 79 N greater than the one on Hardware Review I. The clamping force is also 105.75 N greater therefore than the Hardware Review I |
| Brake Disk Structural FEA |  |  |
| Knuckle Redesign |  |  |
| Hub Redesign |  |  |
| Final Assembly |  |  |

**Team Member: Salem**

| Action Item | **Date Completed** | **Result/Proof of Completion** |
| --- | --- | --- |
| Complete Steering System Design |  |  |
| Steering System Calculations |  | The steering system is added in the project scope after the Hardware Review I, therefore the calculations performed are performed only in Hardware Review II. Following are the results of the calculations. |
| Rack and Pinion FEA |  | A picture containing device  Description automatically generatedA picture containing shape  Description automatically generated |

**Team Member:**

| Action Item | **Date Completed** | **Result/Proof of Completion** |
| --- | --- | --- |
| Upper Arm Calculations |  | The upper arm calculations are performed in Hardware Review II again as the vehicle mass is changed from the Hardware Review I. Following are the results of the calculations. |
| Spring Calculations |  | spring force variation with changing compression deflection of the shock absorber  Spring Rate Curve |
| Upper Arm FEA |  | A picture containing shape  Description automatically generatedShape  Description automatically generated |
| Ball Joints Included |  |  |

**Team Member: Salem**

| Action Item | **Date Completed** | **Result/Proof of Completion** |
| --- | --- | --- |
| Complete Steering System Design |  |  |
| Steering System Calculations |  | The steering system is added in the project scope after the Hardware Review I, therefore the calculations performed are performed only in Hardware Review II. Following are the results of the calculations. |
| Rack and Pinion FEA |  | A picture containing device  Description automatically generatedA picture containing shape  Description automatically generated |

**Team Member: Chujian Wang**

| Action Item | **Date Completed** | **Result/Proof of Completion** |
| --- | --- | --- |
| Schematic of Dashboard | 10/4/2021 |  |
| Formula of display speed | 10/4/2021 | The final formula: V\_display = rpm \* R \* 0.3768 (Km/h) |
| Layout of first hardware review | 09/17/2021 |  |
| Layout of second hardware review | 11/4/2021 |  |

The following are the Action Items for each team member between HR 2 and the Final Product presentation:

| Team Member | **Action Items** | **Date Due** |
| --- | --- | --- |
| Omar Alamoudi | 1. Drawings for Brake Disk, Caliper and Fasteners 2. Brake Motion Analysis | 1. 11/11/2021 2. 11/18/2021 |
| Musaed Fraidoun | 1. Drawings for Knuckle and Hub 2. Brake Motion Analysis | 1. Due date 1 2. Due date 2 |
| Salem Almarri | 1. Drawings for Steering System Parts 2. Steering Motion Analysis | 1. Due date 1 2. Due date 2 |
| Chujian Wang | 1. Fix the LCD and motor power problem 2. Add I2C module to the LCD 3. Test the product | 1. 11/12/2021 2. 11/15/2021 3. 11/18/2021 |