

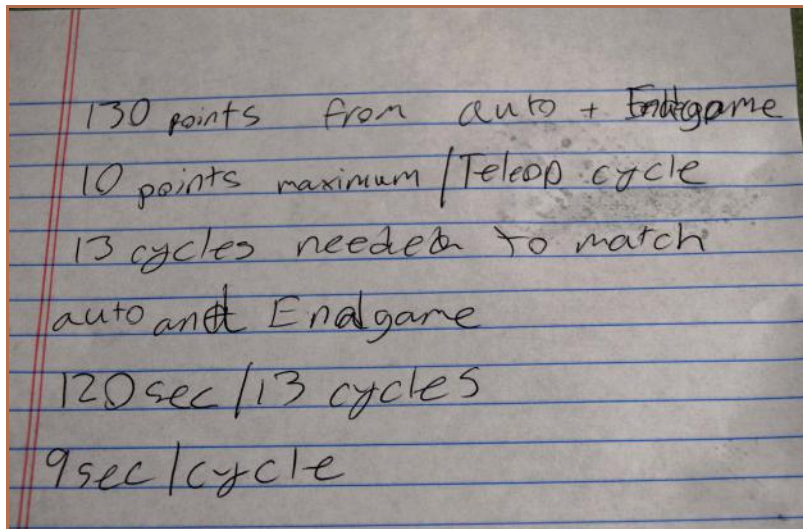


# BROWNCOATS

## Team 7842 Engineering Notebook - Rover Ruckus

### Initial Strategy

As soon as we found out what the challenge was for this year, we began analyzing the game to try and decide where the most points were and which subsystems we should prioritize, for both hardware and software. First, we noticed that a full autonomous plus end game would equal 130 points. In order to make this up during teleop, we would need 13 cycles of two elements, which would be 26 elements. Because we have a qualifier coming up in early November, we decided it best to prioritize the drive train, the autonomous software, and the landing/hanging latch and lift. However, we didn't want to completely ignore the other subsystems. We decided to continue thinking about and narrowing down ideas, but still keep those options on the back burner until we had everything else finished for the qualifier.



### Milestones set for ourselves

1. Score one point by October 1<sup>st</sup> (Week 4)
2. Score 100 points Three Weeks Later (Week 8)
3. (Stretch Goal) Score 370 Points by World's (Week 33)

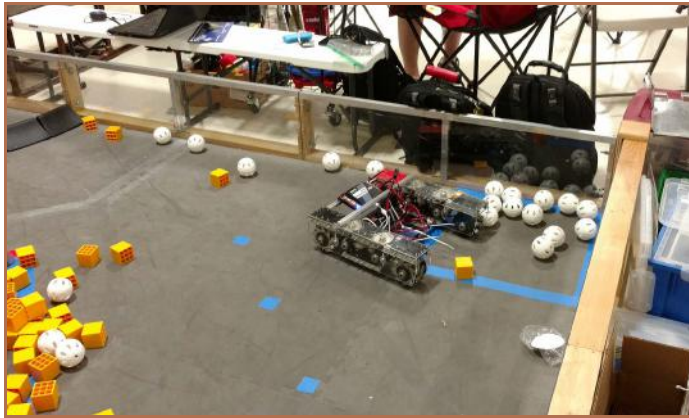


## **BROWNCOATS**

### **Team 7842 Engineering Notebook - Rover Ruckus**

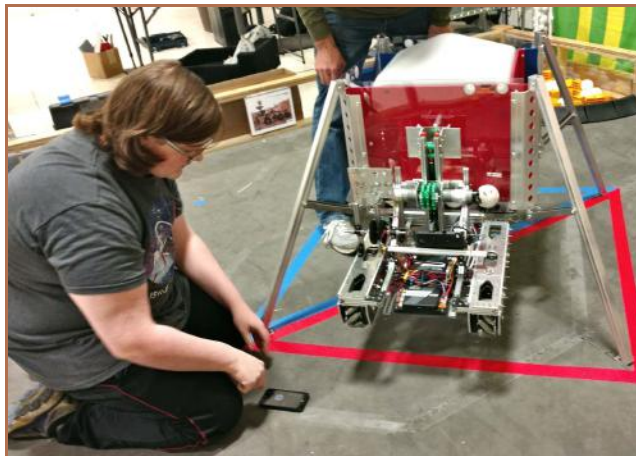
#### **Milestone 1: Score one point by October 1<sup>st</sup> (Week 4) - ACHIEVED**

We officially completed our 1 point by October 1<sup>st</sup> goal! Our newly assembled drive train was able to push elements around on the field, as well as partially park in the crater for end-game.



#### **Milestone 2: Score 100 points Three Weeks Later (Week 8)- ACHIEVED**

During the time between kickoff and the Springdale Qualifier, we were able to successfully achieve our milestone of scoring 100 points. We completed autonomous, and then we hung during end game.





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## Team 7842 Engineering Notebook - Rover Ruckus

Springdale, Arkansas Qualifier	
<b>Our goals:</b>	<b>How we plan to accomplish our goals:</b>
<ul style="list-style-type: none"> <li>! Successfully hang in every match</li> <li>! Successfully complete autonomous in every match</li> <li>! Push elements into depot during teleop</li> <li>! Perform well enough to be considered as a final alliance partner</li> <li>! Do well in judging</li> </ul>	<p>Our strategy was to concentrate our efforts on making autonomous and latching during end game consistent. We used the divide and conquer method to achieve this task.</p> <p>Because our intake/collection system wasn't finalized, we put a scoop on the front of the robot so that we could push elements that are on the field into the depot, earning us much needed extra points. For judging, we put much more effort into preparation and practice, by inviting guest engineers to listen and critique our judging presentation.</p>
<b>What we accomplished:</b>	
<p>What we accomplished:</p> <ul style="list-style-type: none"> <li>! #1 seeded Alliance Captain</li> <li>! Winning Alliance Captain</li> <li>! Autonomous and hanging worked in every single match</li> <li>! For judged awards, we won 1<sup>st</sup> Place Design Award, 2<sup>nd</sup> Place Think, 2<sup>nd</sup> Place Control, and 3<sup>rd</sup> Place Innovate.</li> </ul>	

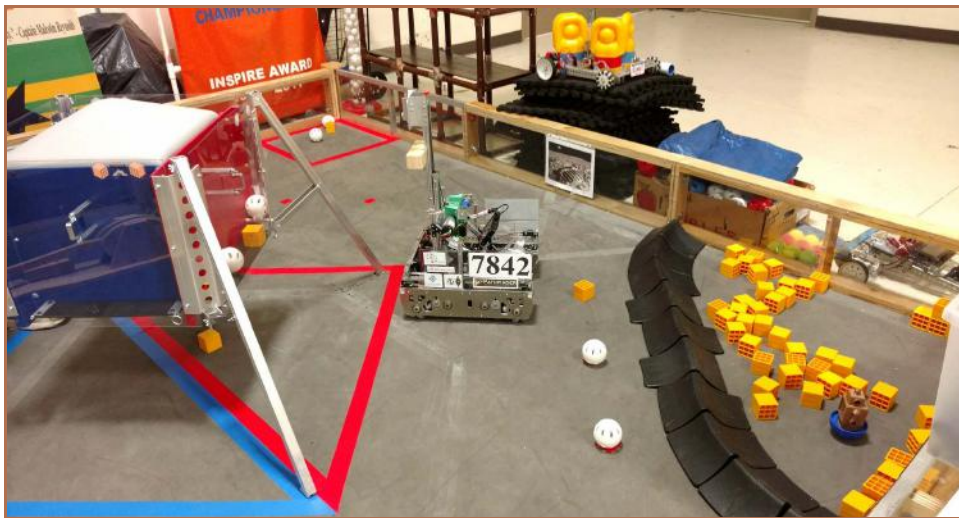




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Hot Springs, Arkansas, Qualifier	
Our goals:	What we accomplished:
<ul style="list-style-type: none"><li>! Be able to score minerals in the lander during teleop</li><li>! Have autonomous work in every match</li><li>! Hang successfully in every match</li></ul>	<p>Unfortunately, we were not able to attend this qualifier. We'd been having trouble getting our scoring arms to function properly, and we weren't nearly as prepared as we'd wanted to be. We didn't have an intake that was ready to be mounted, and even though we were close with the arms, we weren't confident enough to bring them to a competition. And because Alabama State is only a couple of weeks away, we want to focus on getting the robot ready for that. We're sad we weren't able to attend, but we're also very excited to get our robot up and running!</p>



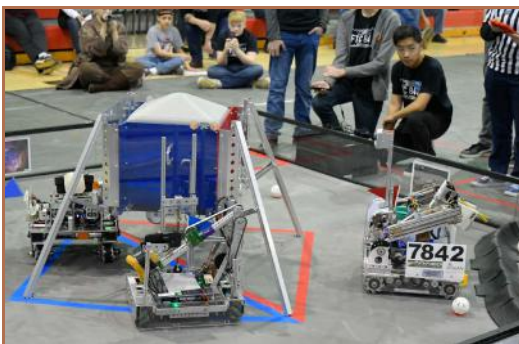




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## Team 7842 Engineering Notebook - Rover Ruckus

Alabama State Championship	
Our goals:	How we plan to accomplish our goals:
<ul style="list-style-type: none"> <li>! Complete autonomous in every match</li> <li>! Score 6-8 cycles (12-16 cubes) during teleop</li> <li>! Hang during endgame in every match</li> <li>! Do well enough to be a first or second pick for final alliance</li> <li>! Be considered for the Inspire Award</li> </ul>	<p>For scoring minerals during teleop, we wanted to be able to drive back and forth from the crater to the lander, however, our intake can only pick up cubes, and the gate we have on it isn't long enough to drop the blocks into the cube cargo hold. So, to fix this, we added a lip of corrugated plastic on the edge of the gate to give it enough reach to score them. This way, we can score elements much faster instead of driving around the lander to the cube side and then driving back to the crater again.</p>
What we accomplished:	
<ul style="list-style-type: none"> <li>! Successfully completed autonomous in every match</li> <li>! First pick from the #1 seeded alliance</li> <li>! Finalist Alliance</li> <li>! For judged awards: 1<sup>st</sup> Place Design, 2<sup>nd</sup> Place Control, 2<sup>nd</sup> Place Innovate, 3<sup>rd</sup> Place Motivate, 2<sup>nd</sup> Place Inspire, and one of our members was a Dean's List Finalist</li> <li>! Advanced to the World Championship</li> </ul>	

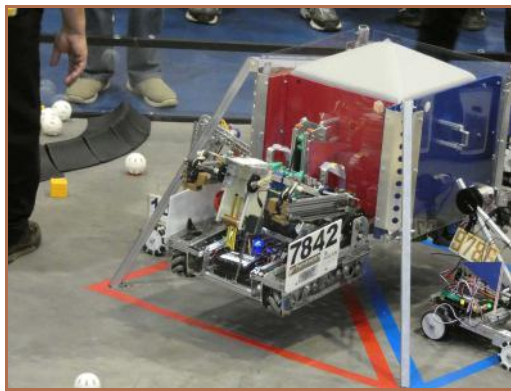




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## Team 7842 Engineering Notebook - Rover Ruckus

Tennessee State Championship	
<b>Our goals:</b>	<b>How we plan to accomplish our goals:</b>
<ul style="list-style-type: none"> <li>! Improve our amount of cycles scored and consistently score 6-8 cycles</li> <li>! Complete autonomous in every match</li> <li>! Hang during every match</li> <li>! Be considered for the Inspire Award</li> </ul>	<p>During Alabama State, we were unable to hang during every match, or score 6-8 cycles due to a static problem that would cause our robot to completely disconnect. We only had one week between state competitions, but we taped over bolt heads that might connect with the lander in hopes of mitigating some of the issues.</p>
<b>What we accomplished:</b>	
<ul style="list-style-type: none"> <li>! Inspire Award Winner and 2<sup>nd</sup> Place Control</li> <li>! Scored 7 cycles in two of our matches</li> <li>! Hung during all but one of our matches</li> <li>! 1<sup>st</sup> pick for the 4<sup>th</sup> seeded alliance</li> </ul>	





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## Team 7842 Engineering Notebook - Rover Ruckus

Arkansas State Championship	
<b>Our goals:</b>	<b>How we plan to accomplish our goals:</b>
Our goals: ! Have autonomous work in every match ! Hang in every match ! Consistently score 6-8 cycles in every match ! Be an alliance captain	During the Tennessee State Championship, we only experienced a static issue once, and after we changed out one of our cables, it didn't happen again. But even so, we took some extra precautions and added a couple more features to keep the static away. Our autonomous program wasn't very consistent during Tennessee, so we tweaked a couple of positions to hopefully help it.
<b>What we accomplished:</b>	
! #1 seeded Alliance Captain ! Autonomous worked in every match ! Hung in every match ! Scored 7-8 cycles during every match ! Finalist Alliance Captain ! For Judged awards: 1 <sup>st</sup> Place Connect, 2 <sup>nd</sup> Place Innovate, and 3 <sup>rd</sup> Place Motivate	





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## Team 7842 Engineering Notebook - Rover Ruckus

World Championship	
Our goals:	How we plan to accomplish our goals:
<p>! <b>Milestone 3:</b> Stretch Goal - Score 370 Points by Worlds</p> <p>! Place in the top 10 in our division</p> <p>! Be selected as an alliance partner</p> <p>! Be nominated for a judged award</p>	<p>We needed an intake that can score both balls and cubes and can pick the elements up quickly. So, we built an intake and added a sorter that sorts the balls and cubes into their correct cargo holds, and we added a motor to make the sweeper faster.</p> <p>Our driver controlled software was improved to add a number of automated enhancements to make driving easier and more consistent for the robot drivers.</p> <p>Our autonomous software was improved by making the paths faster and more reliable.</p> <p>Added more driving practice which has made us faster at picking up and scoring minerals.</p>
What we accomplished:	
To Be Determined!!	

