1.Uniqueness of our bot

This is Team Blackjack, and our bot Joker. Joker's design and maneuverability are unique. It consists of two parts connected only by a pipe and a spring, giving our bot an advantage when navigating rough terrain or clearing obstacles that require balance and flexibility. The spring and pipe system works by connecting the two parts in a way that allows them to rotate around the spring's axis. When they rotate, the spring applies an opposite torque, returning each part to its original position, allowing our bot to smoothly navigate obstacles. we also made our wiring look arranged by passing it from the pipe giving it more protection. Additionally, our bot has an exceptionally low center of mass, reducing the risk of toppling over. We achieved this by attaching all the electrical components in a single plane on the lower side of the chassis and by connecting the Li-ion battery by opening it and arranging the cells one after the other, improving weight distribution. We also opted for 10 by 4 large tires to provide our bot with good ground clearance and an appealing appearance.

2.Motivation and our XLR8 journey

The story of our bot, Joker, began with an idea sparked by one of our team members, Pavit. He used to play with a U-shaped toy with two arms that worked independently but were connected by a bearing. This toy served as our initial inspiration and motivation, and we embarked on the journey to create our bot from there.

We modified the design, carefully considering how it should rotate about which axis and how the pipe and spring could be connected to navigate the specific obstacles presented in XLR8. While crafting Joker, we encountered numerous challenges, with the attachment of the spring and pipe proving to be particularly perplexing. However, we put our heads together, brainstormed innovative solutions, and eventually cracked the problem. Joker's creation is a testament to our team's determination and resourcefulness.

3.Mentor guidance

Our mentor, though not in constant contact, played a role in guiding us through this endeavor, offering assistance whenever possible.

But we got enormous help from XLR8 convenors in solving our problem anytime inour journey.

4.Resources used

We harnessed the resources generously provided by the XLR8 convenors, and to further amplify our bot's capabilities, we integrated an additional spring and an ultrasonic sensor, specifically tailored to address the challenges presented in the MRT and AUV problem statements.