TODO
WORK PACKAGE

TITEL : Development of Steering Controller for PTB System Downhole

WOPA.Nr: 0004   CONTEST YEAR: 2023/2024   ISSUED BY: C. SOILEMEZIDIS

**University of Clausthal SPE Student Chapter**

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Drillbotics® is a prestigious international university competition where teams from around the globe collaborate to design and develop an autonomous directional drilling rig. This challenge merges engineering expertise with innovation, aiming to revolutionize the drilling industry while promoting collaboration and hands-on experience.
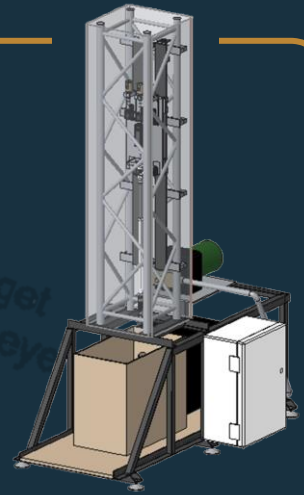
OBJECTIVE
DEADLINE: 31st March 2024

To develop and integrate a steering controller for determining the necessary steering forces for the PTB system downhole, using the specified parameters as the starting point.

OUTCOME

By the task's end, the rig will benefit from an innovative steering controller capable of accurately determining the necessary forces for optimal PTB system downhole steering. This controller, fully integrated within the autonomous algorithm framework, will significantly enhance the rig's drilling precision. Additionally, the student will deepen their proficiency in Python programming and gain hands-on experience with mechanical calculations relevant to drilling systems.

Student Work Packages

Students interested in hands-on experience and applying their academic knowledge are encouraged to take on these work packages. If you're keen to express interest, apply for a work package, or seek more details, please contact us. It's up to you to decide whether the task aligns with your skills and interests. If you lack experience in the highlighted fields (in BLUE), seize the opportunity to learn with us. Don't worry; the primary requirement is motivation. This journey is all about learning and growing.
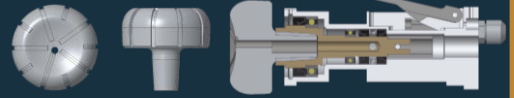
DESCRIPTION

The task at hand revolves around conceptualizing and bringing to life a new approach for steering control within the rig. The student will be focused on creating a steering controller tailored for the PTB system downhole. Python will serve as the primary language for implementing this controller, ensuring it fits seamlessly within the autonomous algorithm framework. Key parameters such as azimuth, inclination, and measured depth will form the starting point for calculations. From this foundation, the controller should generate three distinct force values, essential for actuating the pads correctly to align with the next drilling target. As part of the task, the student will also engage in test runs, ensuring the developed controller operates efficiently and effectively within the rig's framework.

CONTACT

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Certificate of Completion for Work Packages

Upon successful and timely completion of the designated work package, and if the specified outcomes are met, a certificate will be issued to the individual responsible for the task. This certificate stands as an official recognition of the individual's diligence, skill, and commitment to the project.

Complexity grade

1.	20h	3.	60h	5.	100h
2.	40h	4.	80h	6.	>100h

Complexity grade
6
5
4
3
2
1

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MECHANICAL	ELECTRICAL	ADMINISTARTIV	PROGRAMMING	AI	DESIGN