

الاستهلال

قال تعالى:

{... وَقُلْ رَبِّ زِدْنِي عِلْمًا }

صدق الله العظيم

DEDICATION

To our lovely **mothers** whom we bare this success and never Slept in night to see us on the top.

To our **fathers** who supported and helped us

To our **doctors** and **lecturers** that help us through our studies and spent a lot of their times to supply us with knowledge and

Work hard to graduate us.

To our supervisor **Dr. YOSUF ELTAHIR** how supply us

With all we need of knowledge.

To our **brothers, sisters, family** and **classmates**

To our dear **friends** who supported us in these journey

To everyone who helped us without forgetting someone.

Thanks all you

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ABSTRACT

Rock drilling is the process employed to retrieve both the conventional and the unconventional resources, such as oil and gas buried under the ground. This project attempts to improve understanding of the parameters that affects drilling time and drilling costs. Rate of penetration (ROP) is a master parameter which has direct effect on drilling cost. So, this work is aimed to optimize drilling parameters, predict ROP, drilling time and cost. Utilizing Graphical User Interface (GUI) for designing a computer program to predict ROP based on Bingham model, Warren model and Bourgoyne and Young model. The developed GUI can allows users who are not familiar with computer programming to conduct drilling optimization with cost analysis available and to ease application. This software was combined with nicely calculations and graphic plotting, analysis of the results that had been made and it come into a good conclusion. Trend analysis as well as PAYZONE had been utilized to verify the software results and accuracy.

Keywords: drilling optimization software, cost analysis, ROP and Bit selection.

التجريد

حفر الصخور هي عملية لاستخراج كل من الموارد التقليدية وغير التقليدية مثل النفط والغاز المدفون تحت الارض. هذا المشروع محاولة لتحسين مفهوم العوامل التي تؤثر علي زمن وتكلفة الحفر. معدل اختراق سكينه الحفر للطبقات هو عامل مهم وله تأثير مباشر علي تكاليف عملية الحفر لهذا فإن هذا المشروع يهدف لحساب امثل قيم لمعاملات الحفر والتنبؤ بامثل معدل اختراق وتكاليف الحفر والزمن المستغرق في عملية الحفر. تم استخدام واجهة المستخدم الرسومية لتصميم برنامج للتنبؤ بأمثل معدل اختراق إعتماًداً علي نموذج بنجهام ونموذج وارن ونموذج بورغوين وينغ. طورت واجهة المستخدم الرسومية بحيث يمكن ان تسمح للمستخدمين اللذين ليسوا علي دراية ببرمجة الحاسوب باجراء الحفر الامثل بتحليل التكاليف المتاحة وبتسهيل التطبيق. هذا سوفت وير هو جمع للحسابات و الرسومات البيانية وتحليل للنتائج التي تحققت . كما تم تحليل النتائج المتحصل عليها من برنامج PAYZONE واستخدامها للتأكد من نتائج السوفت وير ودقتها.

الكلمات الرئيسية: سوفت وير الحفر الامثل, تحليل التكلفة, معدل الاختراق و اختيار السكينه.

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