

الاية



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(سورة الرحمن)

DEDICATION

This work is dedicated to
My parents

ACKNOWLEDGEMENT

O my lord! So order that I may be grateful for thy favors, which thou has bestowed on me and on my parents, and that I may work the righteousness that will please thee.

I would like to thank all those who supported me, my parents, my brother, my sisters and my friends. Special thanks are due to my Supervisor, Dr. Abdelfattah Bilal Abdelsalam, for supporting me. I greatly express my thanks to E. Mohammed Osman, Mohammed Alfatih and all persons who supported me in preparing this research.

ABSTRACT

The programmable logic controller (PLC) and human machine interface (HMI) have been successfully applied to a wide variety of practical problems such as the Parking Availability and Gate Control system. It has been shown that this programmable logic controller performs better than conventional system, especially when applied on processes that have a difficult model and when there is heuristic knowledge from human operators. The SIMATIC S7-300 PLC has been used because it is one of the most common used in automated system.

The main objective of this research is to design and implement the Parking Availability and Gate Control system. The Gate Control system using led indicators to compensate a DC motor which has been controlled by PLC and HMI to help and guide the driver. The model has been programmed by using SIMATIC STEP7300 and HMI WinCC flexible software. The model has been implemented and built.

الملخص

المتحكم المنطقي القابل للبرمجة وشاشة الاتصال الجرافيكية طبقا بنجاح على مجموعة واسعة من المشاكل العملية على سبيل المثال نظام إمكانية مواقف السيارات وأنظمة التحكم في المدخل. ولقد ثبت أن أداء المتحكم المنطقي القابل للبرمجة أفضل من أداء المتحكمات التقليدية، وخصوصاً عندما تطبق على عمليات تتميز بصعوبة النموذج، وعندما يكون هناك حاجة لمعرفة مجريات الأمور من الأشخاص العاملين. وقد استخدم المتحكم المنطقي القابل للبرمجة SIMATIC STEP7300 وذلك أكثر شيوعاً في الأنظمة المؤتمتة.

الهدف الرئيس من هذا البحث هو تصميم وتنفيذ نظام إمكانية القراج وأنظمة التحكم في البوابة باستخدام المتحكم المنطقي القابل للبرمجة. استخدم لمبة بيان عوضاً عن محرك التيار المباشر في نظام التحكم في البوابة كما أستخدم نظام شاشة الاتصال الجرافيكية لتوجيه السائقين. تم برمجة النموذج باستخدام (SIMATIC STEP7300) بعد ذلك تمت محاكاة النموذج باستخدام (HMI software). أخيراً تم بناء النموذج وتنفيذه.

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