

قَالَ تَعَالَى: ﴿ وَيَسْأَلُونَكَ عَنِ الرُّوحِ قُلِ الرُّوحُ مِنْ أَمْرِ رَبِّي وَمَا أُوتِيتُمْ مِنَ الْعِلْمِ إِلَّا قَلِيلًا ﴾

صدق الله العظيم

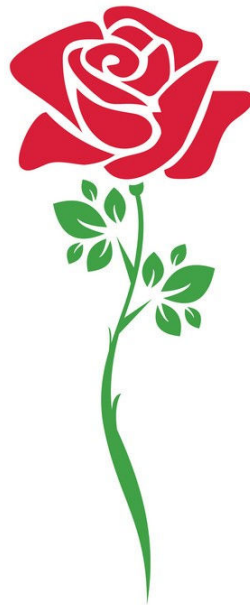
الإسراء الآية

٨٥

## **Dedication**

*To my lovely mother, my dear father, brothers and sisters.  
To my friends, relatives, colleagues and classmates.  
To anyone who helped me during my journey to achieve my  
goals.*

*I dedicate this work to you*



## Acknowledgment

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## **Abstract**

Sudan suffers from shortage in power generation and instability in the grid, moreover there are many of grid areas, therefore it is important to use renewable sources of power represented here in solar energy.

A research was done on the off-grid location, and a village was chosen to install the system depending on its population and power consumption rates.

Providing a reliable and stable power supply for an off-grid area with relatively economic cost.

## مستخلص

تعاني دولة السودان من نقص في التوليد وعدم استقراره في الشبكة ، كما ان هنالك العديد من المناطق خارج الشبكة ، لذلك من المهم ان يتم استخدام مصادر طاقة متجددة ممثله هنا في الطاقة الشمسية.

تم اجراء دراسة عن المناطق التي ينعلم فيها الإمداد الكهربى وتم اختيار القرية التي سيتم تركيب النظام بها بناء على عدد السكان ومعدل استهلاك الطاقة في المنطقة.

توفير امداد معتمد ومستقر في الطاقة لمنطقة خارج شبكة الإمداد الكهربى بتكلفة اقتصادية أقل نسبياً.

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## LIST OF ABBREVIATIONS

DC	Direct Current
AC	Alternating Current
PID	Proportional-Integral-Derivative
PV	Photovoltaic
EJ	ExaJoules

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