الآية

بِسْمِ ٱللَّهِ ٱلرَّحْمَـٰنِ ٱلرَّحِيمِ

ٱقْرَأْ بِٱسْمِ رَبِّكَ ٱلَّـذِى خَلَقَ ﴿١﴾ خَلَقَ ٱلْإِنسَـٰنَ مِنْ عَلَقٍ ﴿٢﴾
ٱقْرَأْ وَرَبُّكَ ٱلْأَكْرَمُ ﴿٣﴾ ٱلَّذِى عَلَّمَ بِٱلْقَلَـمِ ﴿٤﴾ عَلَّمَ ٱلْإِنسَـٰنَ مَا
لَـمْ يَعْلَمْ ﴿٥﴾

سورة العلق،،،،،،،،،،،،،،،

To my Family...

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Abstract

Human computer interaction (HCI) is the study of how humans interact with computer systems.

Using the computer mouse for a long time results in damaging the arm muscle thus, producing pain in the human body. In addition to that, people who lost their hand due to any accidents and substitute it with an artificial arm cannot use the computer mouse in a proper way because of their delay in controlling fingers.

In this project MATLAB was used to design a program to add a vision capability to the computer operation system (windows), so as to control the operation of the computer mouse in a PC screen using finger-tip.

A webcam is connected to the computer to take an image of the view in front of the computer. Three finger-tips are used with different color; red, blue and green. The red finger-tip is used to move the mouse around the screen, the blue to perform a mouse left bottom click, and the green to perform a mouse right bottom click.

مستخلص

مجال تفاعل الانسان مع الحاسوب هو العلم الذي يهتم بكيفية التواصل بين الانسان وأنظمة الحاسوب.تعد فأرة الحاسوب من أدوات التواصل بين الانسان والحاسوب ولكن استخدامها لفتره طويله من الزمن ينتج عنه الم في عضلة الذراع ،اضافه الي ذلك صعوبه استخدامه لذوي الاحتياجات الخاصه الذين تم استبدال ايديهم باطراف أصطناعيه.

فى هذا المشروع تم تصميم وبناء برنامج فى بيئة ماتلاب ليضيف امكانية الرؤيه لنظام التشغيل للحاسوب (ويندوز) ،بحيث انه يمكن المستخدم من التحكم بفأرة الحاسوب باستخدام أطراف اصابع اليد . تم توصيل كاميرا مع الحاسوب لاخذ صوره للمشهد امام الحاسوب و استخدام ثلاث اطراف اصابع بالوان مختلفه الاحمر و الازرق و الاخضر. طرف الاصبع الاحمر مستخدم لتحريك الفاره عبر الشاشه اما طرف الاصبع الازرق ليقوم بعملية نقر الزر الايسر للفاره و طرف الاصبع الاخضر لنقر الزر الايمن للفاره.

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ABBREVIATION

eHCI	Explicit Human Computer Interface
HCI	Human–Computer Interaction
ICT	Information Communication Technology
iHCI	Implicit Human Computer Interface
MATLAB	Mathematical Laboratory
PC	Personal computer
RGB	Red,Green,Blue
UCD	User-Centered Design
UI	User Interface
VSD	Value Sensitive Design
WIMPS	Windows, Icons, Menu and Pointer Device