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Intelligent Survelliance Robot with Gesture Enabled Control for Military Searching and Military Applications

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ABSTRACT:

Gesture based (Non-contact) operation of electrical appliances is becoming increasingly desired technology. Portable Sensor based touch less solutions become more popular after the recent success of touch screen technology. Presently Gestures are not often used to control domestic appliances in a modern infrastructure. This project discuss on the current use of military in appliances and possible usage for various other domains. Various kinds of domestic appliances, industrial appliances are controlling used in households, industries and offices. These devices are mostly controlled by human hand with manual switches. The overview of products is given with varying input methods. A perfect example is to control a robot by hand gesture. This idea made it possible to switch path by changing the directions with the use of hand gestures. Present technologies available to recognize gestures in free air which uses Common methods include cameras, depth sensors or capacitive systems. This work is focusing on study of electric field (E-field) for advanced proximity sensing which are distorted through hand movements in detecting movements. While compared to the other systems this technology can be employed unobtrusively, work through various materials and do not have a high computational burden also. It allows realization of new user interface applications by detection, tracking and classification of the user's hand or finger motion in free space.

INTRODUCTION

Free hand controlled interfaces became a serious analysis space in recent years thanks to their applications in advanced prostheses, exoskeletons, and robot teleportation. Advances in medical instrument (EEG), myo conductor technology
And electromyography (EMG) detection and process have given researchers reliable and non-invasive access to brain and muscle activity that has shifted analysis in medicine, exoskeletons, and teleportation towards establishing association between mechanical device systems and humans. This technology offers promise to assist amputees regain independence , humans to perform tasks on the far side their physical capabilities , and robotic devices and machines to be teleported with exactness .The main challenge in my electric controlled interfaces lies in decipherment neural signals to commands capable of operational the required application. Several decipherment algorithms have been developed victimization machine learning techniques, but these currently suffer from subject specificity and need intense training phases before any period application is possible number of alternative approaches have enforced straightforward decoders meant to be intuitive for users to manage straightforward commands, however these intuitive mappings suffer from task specificity and assume that intuitive

commands translate to maximal performance for a given task . In each cases, the decoders ar designed to maximize the initial performance of the user, that doesn't benefit of a human's natural ability to make inverse models of area , optimize control way and learn new muscle synergies whereas finishing precise physical tasks. Thus, these approaches don't essentially give a foundation for peak performance over time. Before presenting the novelty of the proposed technique, it's helpful to grant the definitions of 2concepts which will be oftentimes employed in the paper.

1) Management task: task to be dead by the topic victimization the

My electric interface, implying each the device to be controlled (e.g., a mechanism hand) likewise as its potential functions (e.g., open/close fingers etc.);

2) Mapping function: mathematical relation that maps myo electric activity to manage actions for the task, e.g., a operate which will translate myoelectric signals to gap the

Fingers of a mechanism hand. This paper proposes a paradigm shift on myoelectric management interfaces that extends on the far side victimization trainable decoders, by suggesting arbitrary mapping operates between the neural activity and therefore the management actions. Additional specifically, this paper investigates user performance with myoelectric interfaces and arbitrary mapping functions that were neither designed for the

Subject nor the task. By increasing on recent conclusions that online control system feedback management is advantageous and effective for learning decoders in myoelectric interfaces the contribution of this paper is twofold.

SOURCE CODE

Project source code:

```
#include<LPC214x.H>
#include<string.h>
#include "LCD.c"
#include "Serial_Uart0.c"
#include "Serial_Uart1.c"
#include "GSM.c"
#include "GPS.c"
#include "robo.c"
#include "Timmer0.c"
#include "Range_Find.c"


#define GPIO_Port0s_IODIR    IODIR0
#define GPIO_Port1s_IODIR    IODIR1
#define Set_Port0s           IOSET0
#define Clear_Port0s         IOCLR0
#define Set_Port1s           IOSET1
```

```
#define Clear_Port1s        IOCLR1
#define Port0_Set          IOPIN0
#define Port1_Set          IOPIN1
#define echo   (1<<6)
#define pulser (1<<7)
#define Buzzer       (1<<10)
#define gas         (1<<16)
#define pir         (1<<17)
#define Metal_Sensor (1<<18)
#define Control_On  (1<<12)
#define  GSM        Set_Port0s
#define  GPS       Clear_Port0s


intPinStatus_Port(unsigned char ,unsigned int);
voidTemperature_Data_Display(void);
voidRobo_Movements(void);
voidSensor_Mesh(void);
voidMetal_Detector(void);
voidMotor_Init(void);


unsigned char x;
unsigned char LCD_CLEAR=0X01;

main()
{

GPIO_Port0s_IODIR = ~(echo|pir|Metal_Sensor|gas);
GPIO_Port0s_IODIR =
(pulser|Control_On|Buzzer|Cam_frwd|Cam_bkwd|Cam_Clk|Cam_Aclk);
GPIO_Port1s_IODIR =
(LCD_Data|RS|EN|BMotor_left_frwd|BMotor_left_bkwd|BMotor_right_frwd|BMotor_right_bk
wd
Lcd_Init();


Set_Port0s=Buzzer;
Delay(200);
Clear_Port0s=Buzzer;

Init_UART0 (9600);
Init_UART1 (9600);
Init_UART0_Interrupt();
```

```
GSM=Control_On;
Delay(150);
GSM_SIM900_Init();
Lcd_Data_Chr(0,0,0,LCD_CLEAR);
Lcd_Data_Str(1,1,"Lat:");
Lcd_Data_Str(2,1,"Lon:");
GPS=Control_On;

Gps_Getdata();
Gps_Datadisp();
GSM=Control_On;
Delay(300);
Enable_UART0_Interrupt();

U0IER = 0x00;
Motor_Init();

Lcd_Data_Str(1,1,"ZIG-BEE Based   ");
Lcd_Data_Str(2,1," Service  Robot ");
Delay(800);
Lcd_Data_Chr(0,0,0,LCD_CLEAR);
Lcd_Data_Str(1,3,"RANGE FINDER");
Lcd_Data_Str(2,1,"Object At:    Cm");
UART0_TX_Str ("WireLess Intelligent Service Robo\r\n");

while(1)
{
Lcd_Data_Chr(0,0,0,LCD_CLEAR);
Lcd_Data_Str(2,1,"Object At:    Cm");
Distance_Measure();
Metal_Detector();
if(serial_flag==1)
{
serial_flag=0;
Robo_Movements();
}
}
}
intPinStatus_Port(unsigned char port,unsignedint pin)
{
if(port==0)
{
  x=(Port0_Set& (1<<pin))?1:0;
```

```
}

if(port==1)
{
 x=(Port1_Set& (1<<pin))?1:0;
}
return x;

}
voidMetal_Detector(void)
{
if(PinStatus_Port(0,16)==0)
{
Set_Port0s=Buzzer;
UART1_TX_Str ("Alert !! Smoke Detected \r\n");
Lcd_Data_Str(2,1," Smoke   Detect ");
GPS=Control_On;
Gps_Getdata();
Gps_Datadisp();
GSM=Control_On;
Delay(300);
Clear_Port0s=Buzzer;
Smk_Message_Send();
}

else if(PinStatus_Port(0,17)==0)
{
Set_Port0s=Buzzer;
UART1_TX_Str ("Alert !! Somebody Detected \r\n");
Lcd_Data_Str(2,1,"Someby  Detected");
GPS=Control_On;
Gps_Getdata();
Gps_Datadisp();
GSM=Control_On;
Delay(300);
Clear_Port0s=Buzzer;
Pir_Message_Send();
}

else if(PinStatus_Port(0,18)==1)
{
Set_Port0s=Buzzer;
UART1_TX_Str ("Alert !! Land Mine Detect \r\n");
Lcd_Data_Str(2,1,"Land Mine Detect");
```

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```
GPS=Control_On;
Gps_Getdata();
Gps_Datadisp();
GSM=Control_On;
Delay(300);
Clear_Port0s=Buzzer;
Metal_Message_Send();
}

else
{
Clear_Port0s=Buzzer;
UART1_TX_Str ("Way Clear No Land Mine\r\n");
Lcd_Data_Str(2,1,"No Land Mine     ");
}
}

voidProject_Label(void)
{
Lcd_Data_Str(1,1,"ZIG-BEE Based   ");
Lcd_Data_Str(2,1," Service  Robot ");
Delay(800);
Lcd_Data_Chr(0,0,0,LCD_CLEAR);

Lcd_Data_Str(1,3,"RANGE FINDER");
Lcd_Data_Str(2,1,"Object At:    Cm");
}
```

PROJECT SCREEN SHOTS

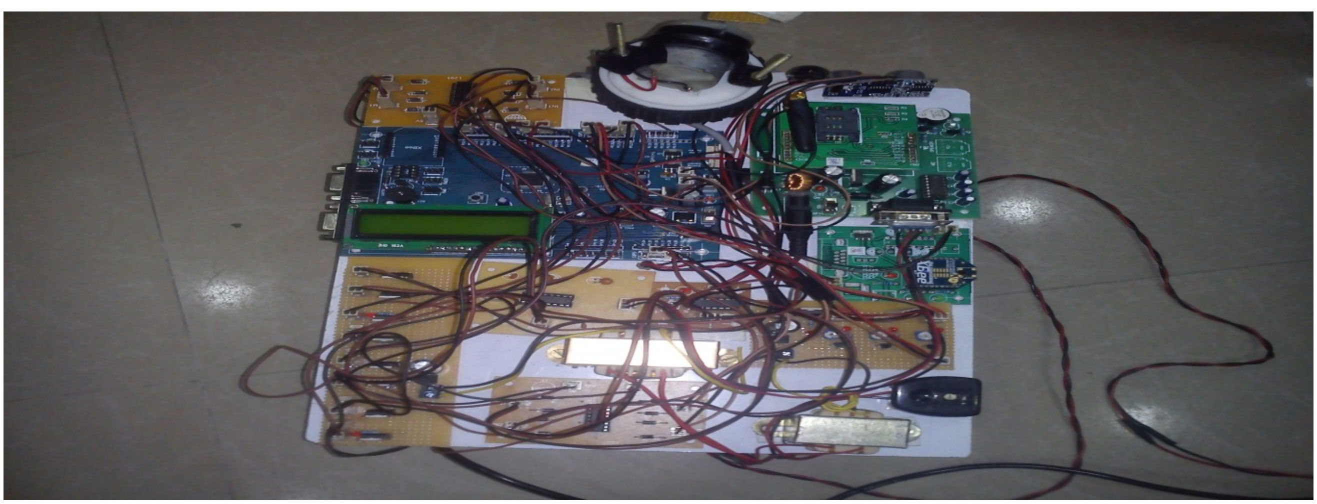

Fig : Kit screen shot

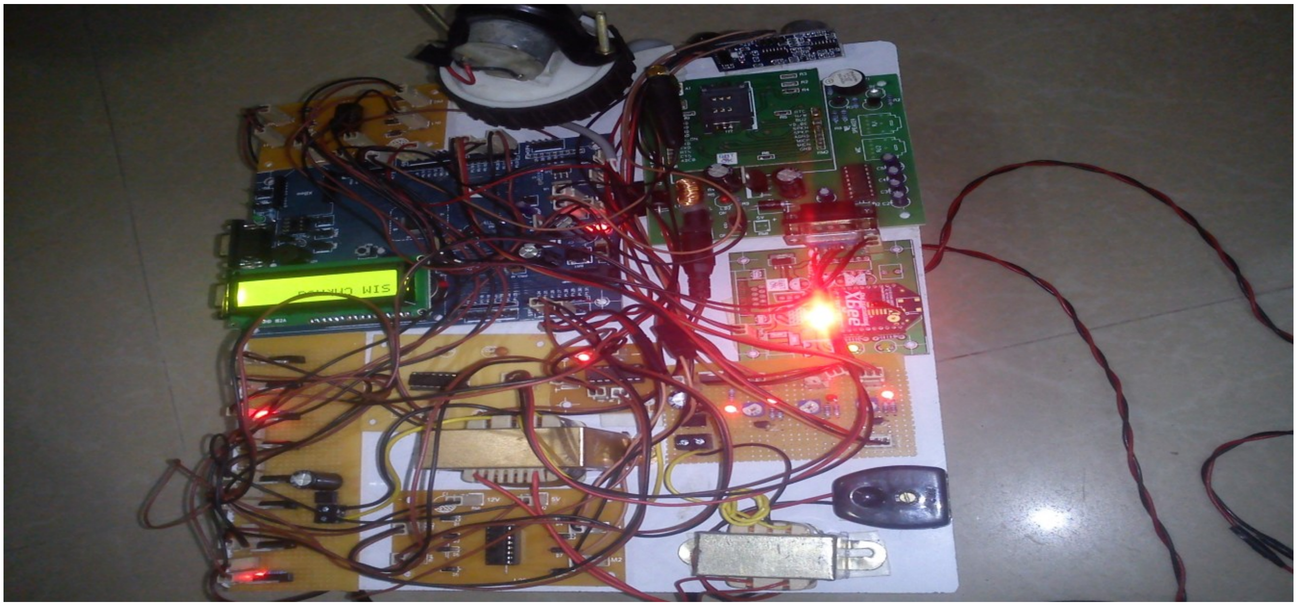

Fig : Screen shot of kit in activation state

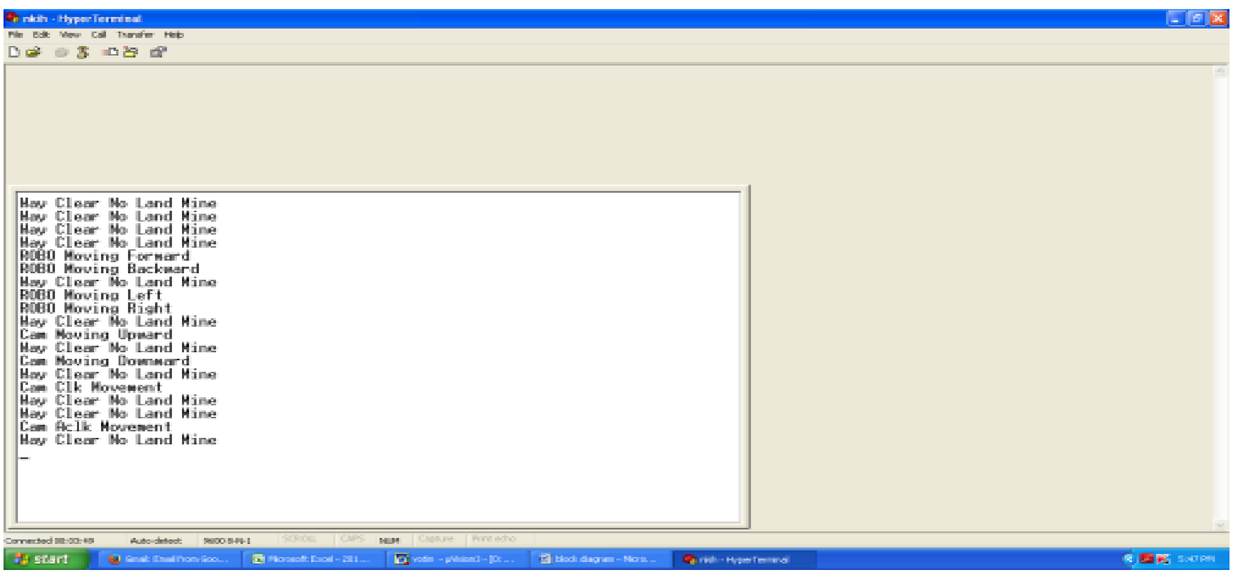

Fig: Output display in hyper terminal

CONCLUSION

Initially it was with difficult technology like sensor, glove etc. now it becomes easier with webcam, image processing software and gaming tools. Poor usability was an issue in the early stage, but now it's intuitive and natural. In the early research gesture control or recognition process was complex, but now it's simple vision technique using hand, head or even whole body gesture. Computer application operating was the main target in the early stage. But now it is widely accepted for ambient device and ubiquitous computing. In recent researches, the more focus have been given to control home appliances, to use mobile device, large screen, table top screen and to manage group work, or even home residents activities. Another most important aspect is now it's really affordable, while it was expensive before. This survey is the accomplishment of the task where gesture controlled user interface for elderly and disable people has been reviewed along with the other gesture technologies. From this survey it has been identified that elderly and disable needs more technology support using their nature behaviour, considering their limitations. We can use affordable technology for daily activities. In our final research 'A gesture controlled communication aid for elderly and disabled people', we are working to develop a rich augmented interface in the regular & familiar appliances like TV sets to control everyday communication using gesture Finally from whole this concept we discussed about task execution systems for industrial automation and rescue searching activities through UART a framework designed to deal with time period programming and reconfiguration of task sets depending on the present context and on the "semantic content of tasks." this is often a haul that's typically left within the background by researchers within the field of intelligent robotic systems. Here, the matter has been formally outlined, the answer Implemented by UART has been delineating intimately, and its theoretical properties are mentioned.

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