Assignment no.3

How Arduino work in Cinema, Hotel and Airlines industry?

What is Arduino?

- Arduino is an open-source electronics platform based on easy-to-use hardware and software. Arduino boards are able to read inputs - light on a sensor, a finger on a button, or a Twitter message - and turn it into an output - activating a motor, turning on an LED, publishing something online.

Cinema hall

This paper presents a new approach to utilize smart technology in a practical and meaningful manner to make finding seats easier for audiences in cinema halls. Generally, the audiences come to cinema halls late and they cannot find their exact seats easily, because there are many places to sit and many small signs (numbers, letters etc.) to define them. Especially, the low lighting of these halls makes seeing seat's number and/or letter much harder. Due to these reasons, smart cinema seat system has been designed by using lights inside the seats which can catch the attention of people. The system is based on an Arduino microcontroller board with a group of sensors and an Android application that can communicate with the microcontroller and server database of the cinema. The lights and sensors have been connected to Arduino microcontroller board and the board has been controlled with the Android application (App) via Bluetooth protocol. The proposed system is a novel idea for smart technology and the results showed it has worked successfully and helped people effectively in finding their seats.

The model of smart cinema seat finding system that has been designed using physical interaction design principles with Arduino and it is based on an interaction between people (audience)and object(seats)

Problem

• Defining seats with small signs (letters, numbers etc.)

  • Crowded, big and complex halls

• Using low lightening methods in halls goals

The main two goals of the proposed system are;

¬ Avoiding confusion

¬ Reducing the time spent while finding seats in cinema

HOW

• The electronic components are used to prototype new systems for engineers and designers in physical computing.

• It includes the design of interactive objects that can communicate with other objects, people, and networks using actuators and sensors controlled by software running inside a microcontroller

Components and technologies

The system has been composed by combining all these components and technologies together. In sum, there are 2 main parts of the system; 1. Arduino microcontroller board with group of connected sensors (Wireless Sensor Network). 2. Android

device with an application that can communicate with an Arduino microcontroller and the database of the cinema.

Conclusion and Future Works

 • The system has been created using an Arduino board and controlled by an Android application, and then it functioned using Bluetooth communication.

 • Particularly for big halls, Wi-Fi can be used as a communication way instead of Bluetooth. It also helps reducing the power consumption.

• The system is a new perspective for cinema, theatre, concert and meeting halls. Also, it can be used for finding seats on airplanes in the future.

Hotel Industry

Many times when we visit any restaurants due to overcrowded when order is being placed it takes more time to process and increases the man power to overcome such disadvantages a system is being implemented called as automatic hotel order processing system where users table consists of a keypad and LCD display on pressing the relevant code of the food item user can send that to the kitchen where waiter can take the order and send the acknowledgement to the customer. Then waiter serve the menu to the customer on time.

Customer will observe the menu list of hotel on LCD display. Customer will choose menu of his choice by selecting the respective menu. While doing this, buzzer will ON and LED start blinking which indicates that order has been successfully placed. This order will received by the waiter which will displayed on the LCD placed in kitchen.

After receiving order waiter will send acknowledgment to the customer. After getting acknowledgement, customer knows about the confirmation order. If respective menu is not present, then waiter press the Reject button which gives the acknowledgement to the customer about the unavailability of menu or item and Re-order. Waiter serves the menu to the customer. Customer can add additional menu if he want. If customer don't want to take any menu he can press "Exit" button and then massage will come "Are you sure to pay bill?" When customer press "YES" bill will generated on table.

The basic principle of working of system is based on use of a handheld device placed on each table which is used to make an order at the hotel. The system uses a LCD display module which is placed on each customer's table for them to make order. Order is made by selecting the items displayed on LCD . The order will be sent from the customer section using zigbee communication and automatically will be displayed on a screen at the kitchen. The bill will be displayed at customer's table as well as at kitchen. The project will reduce the time spent on making the orders and paying the bills, whereby the cost and man power also can be reduced. Fig.3 Proposed System of Transmitter and Receiver Section

4. FUTURE WORK

 The data transfer using light is possible, this idea can be used in the development of Li-Fi technology. This method of data transmission can be applied where optic fiber and radiation prohibited areas such as chemical plants. Space shuttles are used for wireless communication. For the future development of visible light communication systems this study can be used. This can be applied at the chemical plants where the RF waves and OFC cannot be used. This system you can used into the school, college, lab, hospital, aircraft, air plane, to commanding the robot, mobile to mobile communication, etc. where the RF is ban on some areas and RF is strictly unused on that range like petrol pump which is RF is cause the explosion on this areas.

This system is convenient, effective and easy to improve the performance of restaurant's staff. In this system we present an automated food ordering system with real time customer feedback Increasing trends towards a smarter world, it will bring in a good profitable business. . It will also provide quality of service and customers satisfaction.

Airlines

Arduino and other robotic sensors, wires, connectors etc. you can carry everything (EXCEPT BATTERIES AND POINTED TOOLS) in Your Checking baggage or in your heavy luggage. I have travelled twice with my Arduino and other components and nothing happened but please remember put all components with your Arduino in single box and that box should be durable one if you are taking it in your heavy luggage otherwise your components might get damaged and if you are taking it in your checking baggage then it's cool it's up to you how you are carrying it.

Our Flight Controller will be based on Arduino which will be connected to 3 Axis Gyroscope and Accelerometer Sensor and will be programmed to operate as the flight controller. We will use a simulation Software named Multiwii to calibrate and test the working of our flight controller.

The control surfaces of the aircraft are controlled through pulse width modulation (PWM) signals sent from the Arduino Mega to the control surfaces. In the current architecture, the transmitter sends the command to the receiver, where each command is transferred into the Arduino Mega through several analog pins, each corresponding to the throttle, ailerons, aps, elevator, and rudder. Once the signal has been received, the signal is read by interrupts system embedded in several digital pins on the Arduino Mega board, and when a new command has been placed, a ag is raised by the interrupt and tells the system to update the control surface or adjust the rotations of the motor. When the iteration has gone through, the ag is lowered and the process begins again.

This process is conducted to eliminate undesired control surface commands by rst processing incoming commands before relaying out the response. At this phase,

control laws can be implemented by simply switching one of the predetermined knobs/switch on the transmitter. By doing so, the pilot has the capability of switching between automated sequence and pilot input commands on the y. This is bene cial in terms of emergency landing in case the automated sequence fails. C. Airspeed, Temperature, Pressure and Density As previously noted, the pitot static system along with the BMP180 are coded to work in unity. The pressure measurement requires a simple conversion code that translates a voltage reading to a pressure value. With a known temperature and pressure value, density is then determined

GPS

The GPS program allows for the retrieval of latitude, longitude, and velocity of the aircraft through the NMEA command module. The library used for this system is known as TinyGPS. This library was chosen because it does not require the use of Software Serial as most other GPS libraries do. Since the transmitter requires the use of Software Serial, having both devices operate on the same Serial would lead to an error and the code would not upload to the micro-controller. Therefore, TinyGPS is the most suitable library for the task at hand