

## SMART DRIVE

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**Abstract** - With classification of systems and their operating environment, sometimes it becomes impossible to transfer data from one system to another. Due to this limitation often need is felt of transferring data wireless between the two systems not having proper channel for communications. This can be implemented by developing a device with HC-05 BLUETOOTH module on the device.

However there would be speed limitations but the device can save us from using external devices for transferring files from devices like pendrives. The device consists of Arduino Uno, HC-05 bluetooth module and TFT LCD display. So by this device, we can easily transfer our data directly from this device to other devices such as mobile phone without using PC or laptop.

**Key Words:** TFT display, HC05 bluetooth module, Arduino UNO

### 1. INTRODUCTION

Already thriving within the telecommunications market, wireless technology is preparing to embrace computing on an even larger scale. Presently, most people encounter wireless local area networks (WLANs) in airport lounges and tech-savvy offices. Everywhere around the world, this new generation prefers the wireless technology for their work and also the technologies are growing by leaps and bound to carry out all the desires of the customers to fulfil their demands. Several data and application are developed daily which common computer user has to transfer from one USB Flash device into another, with the minimum wastage of time. For this user has to first find a computer then wait for it to boot up, then plug in his device, and then transfer the data. Different types of USB flash devices are used now-a-days. It is not necessary that all of these devices are supported by the computer and the operating system and their device drivers are available and installed. Carrying a computer or a laptop just for the sake of data transfer is not affordable these days in the age when people want all devices to be handy. More- over, transferring data via a computer involves a lot of power to be wasted, since the computer has to be entirely functional before it can transfer data. Also, the threat of viruses and malware has made the life of computer users more complicated. These viruses get activated as soon as the device is plugged into the system and get copied along with other data from one device into another. Our project here can provide a valuable solution to all problems faced by person in above situations. Our aim is to build a small and handy device to transfer data from one

device to another or to mobile phones without using an external device.

The device will have following features:

- a. Arduino UNO
- b. Powered by 5V battery
- c. HC05 bluetooth module
- d. TFT display
- e. Turn on/off switch for Arduino

#### 1.1 Bluetooth

Bluetooth is a wireless technology standard for exchanging data over short distances (using short-wavelength radio transmissions in the ISM band from 2400–2480 MHz) from fixed and mobile devices, creating personal area networks (PANs) with high levels of security.

Bluetooth, named after a king of Denmark, Herald Bluetooth, works on ISM Band of 2.4GHz to 2.48GHz.

#### 1.2 Arduino Uno

The Arduino UNO is an open-source microcontroller board based on the Microchip ATmega328P microcontroller and developed by Arduino.cc. The board is equipped with sets of digital and analog input/output (I/O) pins that may be interfaced to various expansion boards (shields) and other circuits. The board has 14 Digital pins, 6 Analog pins, and programmable with the Arduino IDE (Integrated Development Environment) via a type B USB cable. It can be powered by a USB cable or by an external 9 volt battery, though it accepts voltages between 7 and 20 volts. It is also similar to the Arduino Nano and Leonardo. The hardware reference design is distributed under a Creative Commons Attribution Share-Alike 2.5 license and is available on the Arduino website. Layout and production files for some versions of the hardware are also available. "Uno" means one in Italian and was chosen to mark the release of Arduino Software (IDE) 1.0. The Uno board and version 1.0 of Arduino Software (IDE) were the reference versions of Arduino, now evolved to newer releases. The Uno board is the first in a series of USB Arduino boards, and the reference model for the Arduino platform. The ATmega328 on the Arduino Uno comes preprogrammed with a boot loader that

allows uploading new code to it without the use of an external hardware programmer.

### 1.3 TFT Display

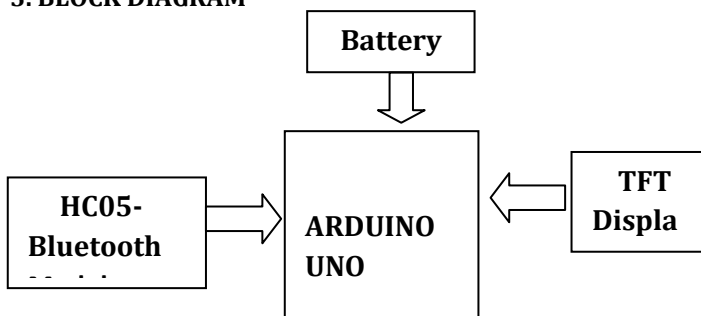
A thin-film-transistor liquid-crystal display (TFT LCD) is a variant of a liquid-crystal display (LCD) that uses thin-film-transistor (TFT) technology to improve image qualities such as addressability and contrast. A TFT LCD is an active matrix LCD, in contrast to passive matrix LCDs or simple, direct-driven LCDs with a few segments.

## 2. LITERATURE REVIEW

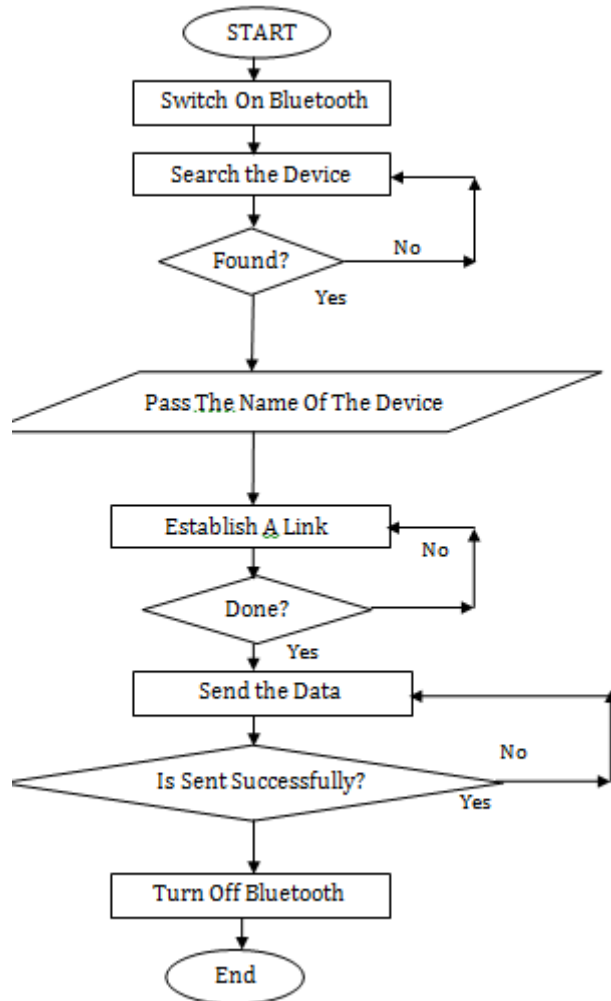
A core team of UMAX Technologies from U.S.A. is doing their research on this project and apart from that there is nothing in the market or in the research up to best of my knowledge. They have their work limited to pen drive of only 256MB maximum. The device will work over the bluetooth link as well as with the arduino UNO interface also. This project will completely different from a normal pendrive due to many reasons.

**Idea Innovation:** Carrying a computer or a laptop just for the sake of data transfer is not affordable these days in the age when people want all devices to be as small and handy as possible. Moreover, transferring data via a computer involves a lot of power to be wasted. There are numerous types of data transactions that are being carried out through these devices. However to operate these devices most of the times an operating system is required which calls for the hosts to be extremely complicated system hence accessing these devices requires complicated hardware, hence a controller that can handle the data transfer.

## 3. BLOCK DIAGRAM



## 5. FLOW CHART



## 4. IMPLEMENTATION DETAILS

It has hardware and software designing. The hardware design consist of interfacing of TFT Arduino and HC05.The software designing (coding) is done in Arduino IDE platform using Adafruit and MCU Friend TFT library.

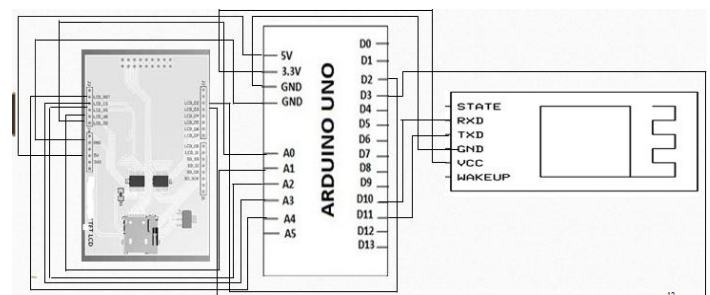


Fig -1: Interfacing Diagram

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