Project Fly

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Problem statement

- Although Bluetooth is simple to use, it has disadvantage of slower file transfer rate

- Access Point, AdHoc still complex
  - Access Point is not available everywhere
  - Hotspot and AdHoc is still difficult to configure for normal users
- Lacking application that delivers simplicity of bluetooth and performance of WiFi

Introduction

- Newer approach to share files between laptops

- Simplicity of bluetooth

- Performance of Wi-fi

Objectives

- To make file transfer between laptops simpler
- To develop an application that gives intuitive user experience to share file
- To make user friendly environment for establishing connection between laptops

Features

- Easily establish connection between two laptops

- Easily share files between laptops

- Application has both GUI and CUI
    - Seamlessly works across GUI and CUI

Methodology

- Could not follow product oriented software development

- Classified our work into four phase

  - Socket study / implementation

  - Study of Wi-Fi Direct

  - Implementation of Wi-Fi Direct

  - Integration of Wi-Fi direct and Socket

System Design
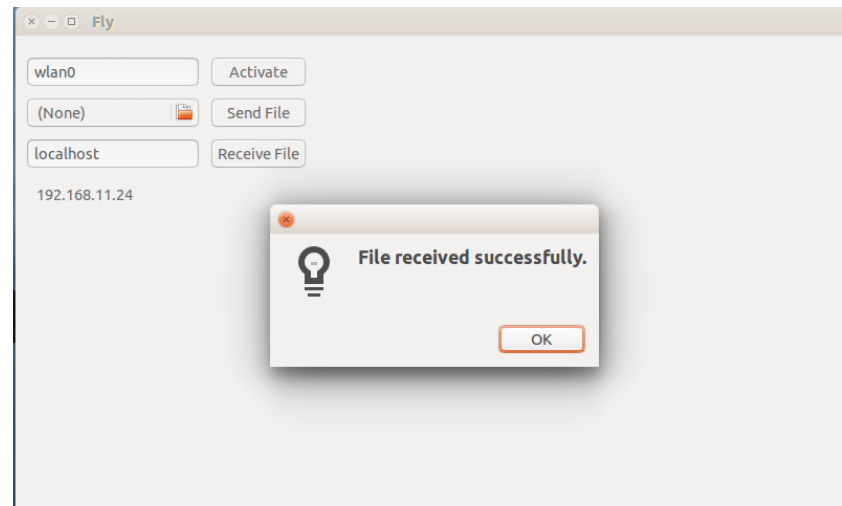
Program Flow

Sending file

Receiving file

Output

Fly CUI

Fly GUI

Demo: CUI

Receiving File

Sending File

```
● ─ □  Terminal
deepak[fly]$ ./fly localhost
client: connecting to 127.0.0.1
file received
deepak[fly]$ ▮
```

```
● ─ □  Terminal
deepak[fly]$ ./fly localhsot lspci.txt
server: waiting for connection...
server: got connection from 127.0.0.1
file successfully send▮
```
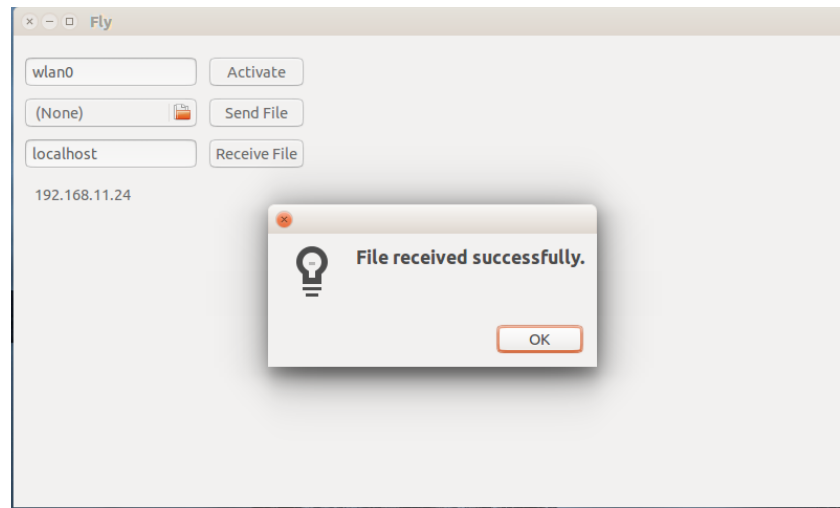
Demo: GUI

Sending file
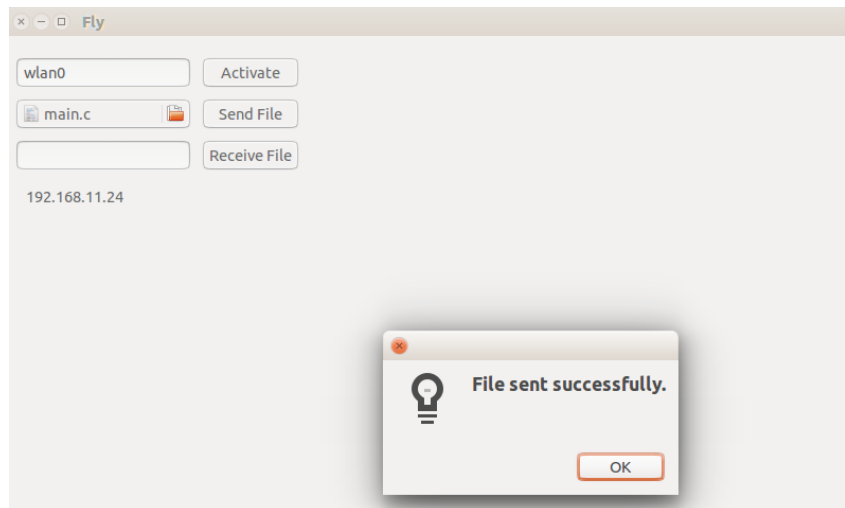
Receiving file

Requirements

- Hardware
    - Wi Fi Direct certified hardware for Group Owner
    - Legacy Wifi or Wifi certified for clients
- Software
    - Machine running Linux alike OS
    - WPA supplicant

Limitations

- The application only works on Linux alike system

- IP needs to be assigned manually

- Character files can only be transferred

Future enhancements

- Implementation of DHCP

- Support across all Operating System

- Transfer of file with any file format

- Establish Wifi Direct connection from fly

Conclusion

- Wifi direct delivers simplicity of Bluetooth and at the same time Bandwidth performance of Wifi
- Although OEM ships with Wifi Direct certification, connecting and sharing contents across different OEM is still difficult
- Wifi is new and emerging technology. It will take some time to commonly use across all devices and become standard

Thank! You

Any Questions?