Spoken Tutorial

Project : Remote Firebird V Android Controller using TCP/IP connection

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Introduction

We have developed the functionality for communication between a Android device mounted on Firebird V bot located at a different location and another Android device at some other location. Live video streaming of the bot environment is obtained on the remote Android device. The communication takes place through TCP/IP connection between the two Android phones. A Blue-tooth module is also mounted on the bot which communicates the data obtained from Android to Atmega2560 via Blue-tooth.

Additional functionality for alerting the user on motion around the bot is also implemented.

Mounting the Android device and the Blue-tooth Module

1. Mount the Android phone on Firebird in a position where you wish to capture the video.
2. Blue-tooth – TODO

Running the code

Firebird Code

1. Install AVR Studio4 and run it. Make a New Project with the code provided. Make sure the configuration options are set i.e. the frequency of the bot(11059200 Hz in our case) and the optimization option is set – O0.
2. Install AVR Bootloader and set the COM option to the PORT number to which you have connected the USB which is connected to Firebird. Set the baud rate to 115200 Hz. Program the code on Firebird.
3. Reset the Firebird to ready the bot.

Installing the Application on the Android devices

1. Install the “Android Controller” Application on the Android device which is mounted on the Firebird.
2. Install the “Robot Controller” Application on the remote Android device.

Getting things run

- **On the mounted Android device**
    1. Activate the Blue-tooth on the Android device.
    2. Run the application Anroid Controller and wait for this device to connect to Firebird through Blue-tooth.
    3. If green light on the blue-tooth module is gone then mobile is connected to blue-tooth module, else it green light on device is still on then something went wrong while connecting.

4. When the Blue-tooth connection is established, the display screen will show two options “Start Server” and “Stop Server”. Select them accordingly.

- **<u>On the remote Android device</u>**

1. Run the application Robot Controller and set the IP address field to the IP address of the server (i.e IP address of android phone mounted on FB5).
2. Toggle the Video option to see the live video from the Firebird.
3. Toggle the Enable SMS option for receiving a SMS on your mobile phone on detecting motion in the Firebird’s environment.
4. You can control the robot's motion using motion buttons now.
5. When you want to disconnect make sure to turn off video first. (Because next time when you tries to turn on it might give you error that couldn't get socket)
6. After turning off video you can click on disconnect button. Once you disconnected you can Stop Server on android phone mounted on FB5