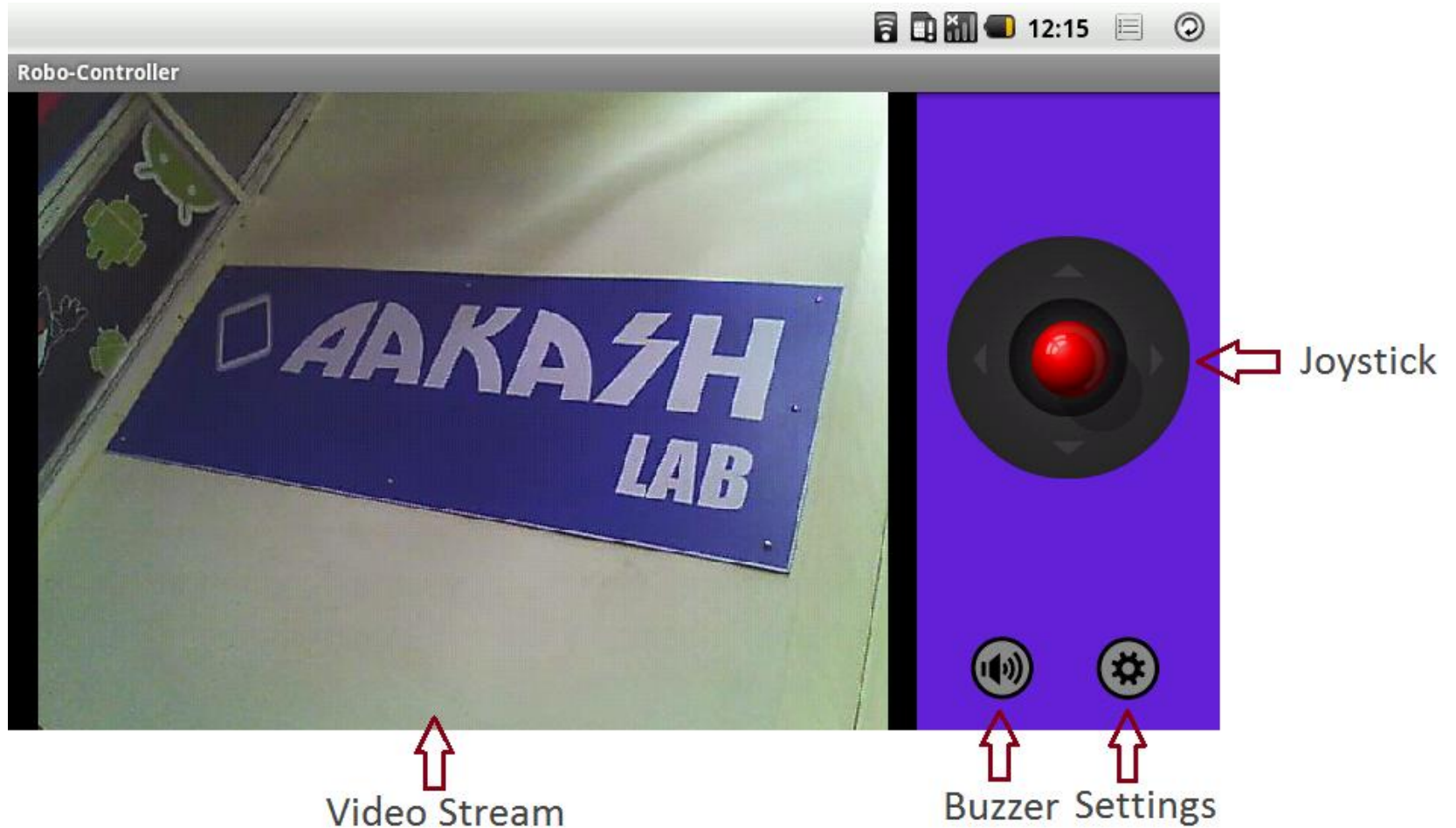




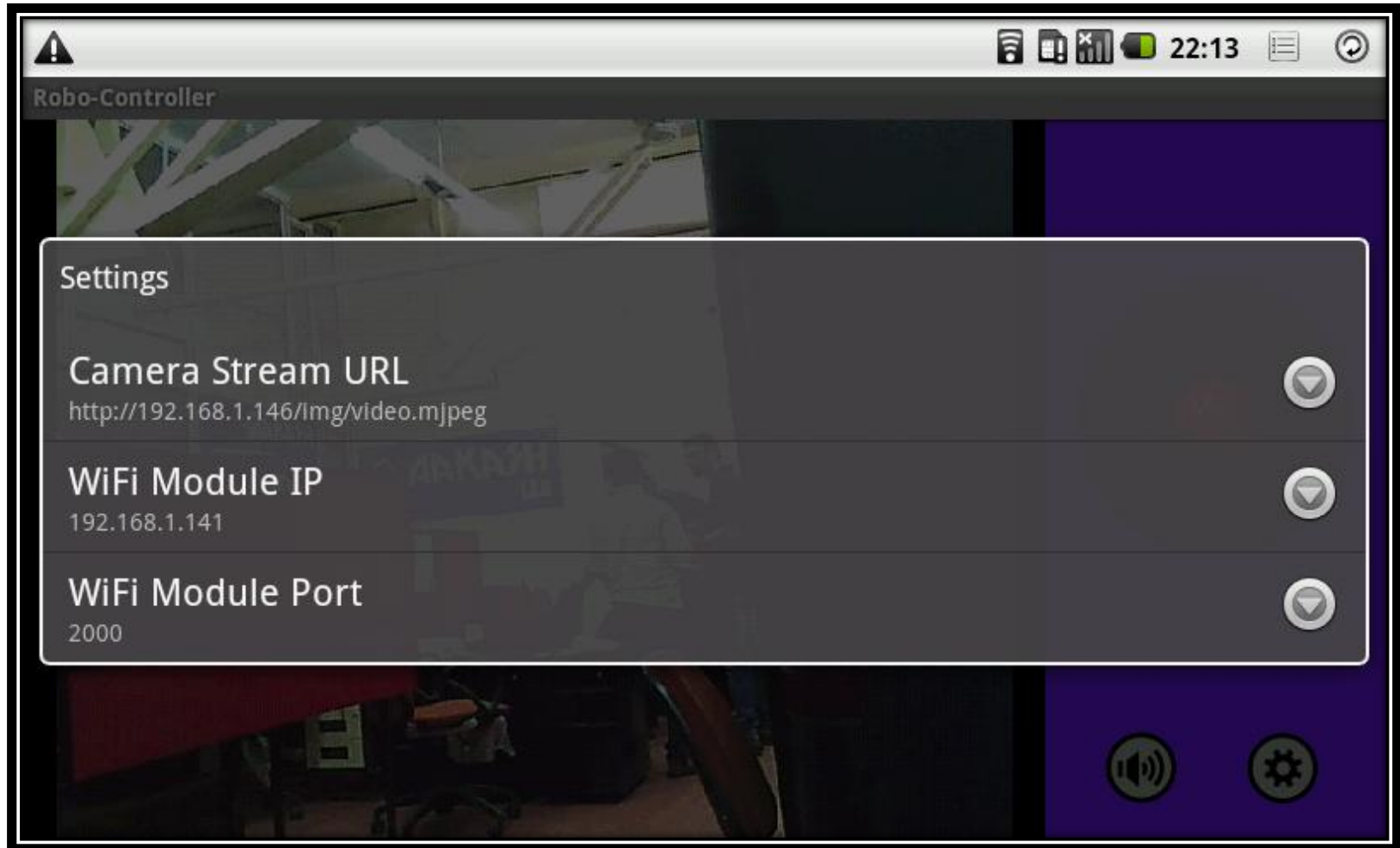
# ROBO

A Robot's motion controller App with video streaming

# Robo-Controller

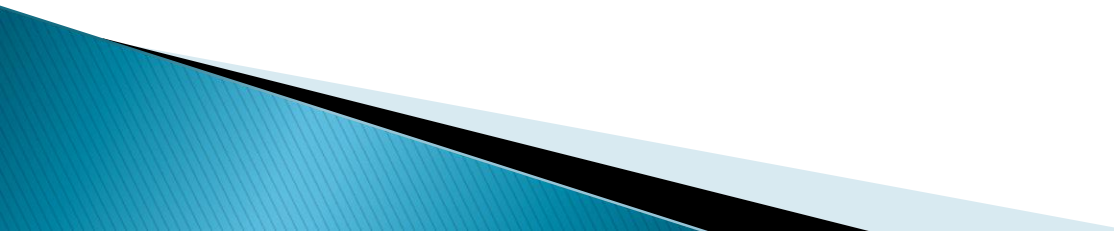


# Settings



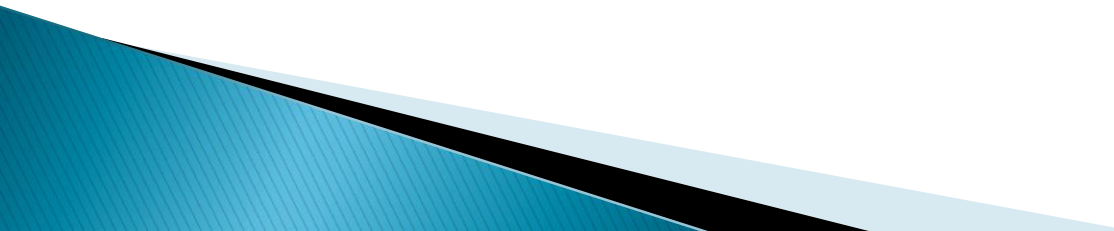
# Requirements

## Hardware

- ▶ Fire Bird V (robot, programmer, charger)
  - ▶ WiFly-EZX module for Fire Bird V
  - ▶ USB to serial converter board (for configuring WiFly module)
  - ▶ IP Camera
  - ▶ Wi-Fi Router
  - ▶ Tablet
  - ▶ Windows Laptop with Wi-Fi capability
- 

# Requirements

## Software

- ▶ For Fire Bird V – AVR Studio 4.17, NEX AVR STK500V2
  - ▶ For WiFly Module – WiFly Driver, USB to Serial COM driver, Bray Terminal
  - ▶ For IP Camera – Installation CD (provided with camera)
- 

# Configurations

## Wi-Fly EZX Module

Following specifications are used for configuring the Wi-Fi module

- ▶ Authentication type – Open
- ▶ Connection type – UDP
- ▶ Joining policy – Connect to the access point matching the stored SSID

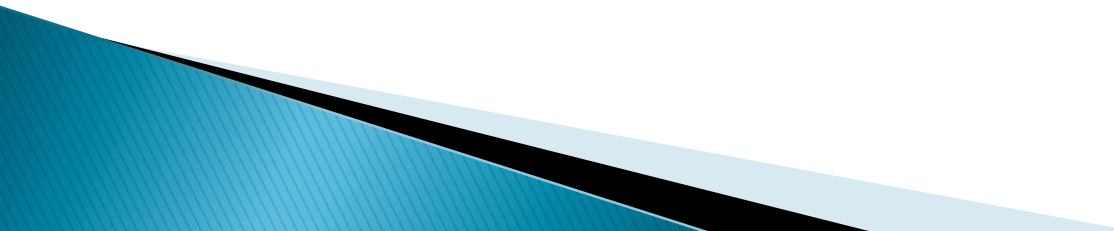
# Configurations

## IP Camera

The IP Camera is configured with the Router and it supports following stream formats–

- ▶ RTSP – Real Time Streaming Protocol
- ▶ MJPEG – Motion JPEG

The present application uses MJPEG stream to show the video.





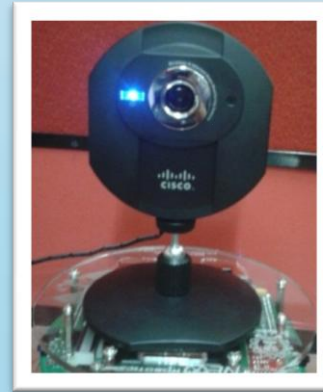
# Flow Diagram

Router Network



Robo-Controller App

IP Camera on Robo

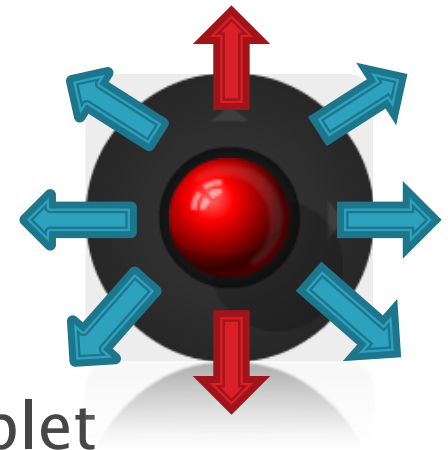


Wi-Fly on Robo



# Working–Motion Control

- ▶ A virtual joystick is used in the Application to control the Robo's motion.
- ▶ 6 Different types of turns along with forward and backward motion are provided.
- ▶ Unique data is sent to the Wi-Fi module from the application on the tablet corresponding to the area in which the joystick has moved.
- ▶ The Wi-Fi module transfers that data to the microcontroller on Robo which controls its motion accordingly.



# Working– IP Camera

- ▶ The IP camera streams its video over Wi-Fi in MJPEG format using its built-in Wi-Fi server.
- ▶ The application captures and decodes this stream using a predefined URL in Settings of the app.

# Applications

- ▶ Surveillance
- ▶ Hostage situations

# Any Questions ??

