The basic hierarchy of the video communication system is as follows .

Camera

module

Analo video

Using one of the 9 channels

TV

Output

output

RCA Cable

(2.4 GHz bandwidth)

RCA2USB

A TV tuner card

Laptop

screen

Analog video is the video format which can only be seen on a television generally.

It has two types of formats namely PAL and NTSC. This changes from country to country.

The camera which we are going to use is generally an FPV (first person view) camera used in aeroplanes and quadrotors.

The analog video resolution is measured in terms of TV lines. (700 tv lines etc.)

The connectors we use for transferring analog video and audio are called RCA connectors.

So as to view this format on the regular laptop screen we have to convert them into an USB port (a TV tuner card does this) and a software is needed to play that.

Week 23 sept - 29 sept:

New points learned:

1. The connecting wires should be as short as possible. Analog video signals get easily corrupted.
2. The usage of a TV tuner card creates a noticeable lag in the real time video.
3. FCC rules also have a rule regarding the wattage of the transmitter. The upper limit is 1W according to the sources right now. Our module is said to be operated at 1200mW.

The module when connected to a 12V voltage source, the voltage of the source started dropping to 3 volts (the reason for this not known yet).

As of now a TV is not available. A TV Tuner card costs 900 to 1200 INR. Or another idea is to use a portable TV of worth 2400 INR, so as to not get a lag.

But when the camera is kept stationary we are getting constant values on the multimeter connected to video output cable. And when it is moved we are getting different values.

Week 29 sept – 06 oct:

To do list:

1. Buy a TV tuner card or somehow arrange a TV for viewing the video output from the module
2. Look into the voltage source problem.
3. Conduct a range test if possible.

Week 06Oct-13 oct:

The video module has been tested using a tv tuner card which converts RCA cable to VGA (PC Monitor compatible) .

It was working fine. It was not showing any lag at least when both of them were in the same place .

Next immediate task in that direction would be a range test of the present module.

After some research about transmitters and receivers I came to know the following new points:

* The module which we are using uses WIFI ttransmission.
* Wifi generally uses IEEE 802.11 standard protocol, and adding to it some additional features for error rectification and longer range transmission.
* Some of the new terms :

Datagram:

A datagram is kind of a data packet which we send over from transmitter to the receiver .it has generally two parts a HEADER and a PAYLOAD. HEADER consists of the addresses and general information regarding the packet and PAYLOAD consists the data to be sent. We can consider it like a telegram of data used in communication.

FRAME:

Frame is a datagram a digital data transmission unit including frame synchronisation, a sequence of bits which enable the receiver to detect the beginning and ending of the data. Due to this even if receiver starts receiving from the middle of the data frame. It waits until the next proper full frame and discards the present one .

FRAME CHECK SEQUENCE:

Frame check sequence is the extra bits added to the frame for error identification the starting part of frame as said above. It ensures that no other garbage values can be taken.

* Generally these analog video transmitters use FHSS for ensuring the no interference due to other modules.
* FRAME HOPPING SPREAD SPECTRUM:

In FHSS the frames hop through the different band channels in a particular fashion that is only known to the receiver.

When both of them are synchronised, the frames are transmitted for some time in a different frequency band and some time in other. So the other interferences are considered as noise when they come only in certain narrow band.

The information about components needed to build our own av transmitter and their functioning is yet to be studied in detailed. This and range test would be the main agenda for the next week.