

## Отчет по лабораторной работе №1.

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Код:

### ***talker.cpp***

```
#include "ros/ros.h" #include
"std_msgs/String.h" #include
<sstream>

void replyCallback(const std_msgs::String::ConstPtr& msg)
{
    ROS_WARN("I heard: [%s]", msg->data.c_str());
}

int main(int argc, char** argv)
{
    ros::init(argc, argv, "talker");
    ros::NodeHandle n;
    ros::Publisher chatter_pub = n.advertise<std_msgs::String>("chatter", 1000);
    ros::NodeHandle a;
    ros::Subscriber sub = a.subscribe("reply", 1000, replyCallback);
    ros::Rate loop_rate(1);
    int count = 0;
    while (ros::ok())
    {
        std_msgs::String msg;
        std::stringstream ss;
        ss << "hello world " << count;
        msg.data = ss.str();
        ROS_INFO("%s", msg.data.c_str());
        chatter_pub.publish(msg);
        ros::spinOnce();
        loop_rate.sleep();
        ++count;
    }
    return 0;
}
```

### ***listener.cpp***

```
#include "ros/ros.h" #include
"std_msgs/String.h" #include
<sstream> #include <string>

bool flag = false;
std::string get_msg;

void chatterCallback(const std_msgs::String::ConstPtr& msg) {
    ROS_ERROR("I reply: [%s]", msg->data.c_str());
    flag = true;
    get_msg = msg->data.c_str();
}

class Listener {
private:
    ros::NodeHandle n;
    ros::Publisher reply_pub;
    ros::Subscriber sub;
public:
    void Reply() {
        std_msgs::String rep;
        std::stringstream ss;
        ss << "Reply " << "[" << get_msg << "]";
        rep.data = ss.str();
        reply_pub.publish(rep);
        ros::spinOnce();
    }
    Listener() {
        reply_pub = n.advertise<std_msgs::String>("reply", 1000);
        sub = n.subscribe("chatter", 1000, chatterCallback);
    }
    void start() {
        ROS_INFO("%s", "Listener talk: ");
        while (ros::ok())
        {
            if (flag) {
                std_msgs::String rep;
                std::stringstream ss;
                ss << "Send";
                rep.data = ss.str();
                Reply();
                flag = false;
            }
            ros::spinOnce();
        }
    }
}
```

```

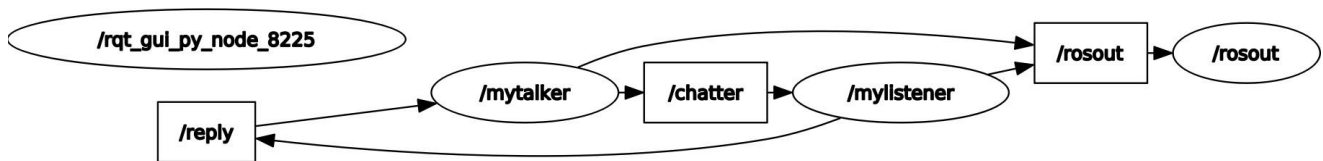
    }
    ~Listener() {}
};

int main(int argc, char** argv)
{
    ros::init(argc, argv, "listener");
    Listener listener;
    listener.start();
    return 0;
}

```

## Результаты

### rqt\_graph



### rqt\_console

#93	[-] I reply: [hello world 93]	Error	/mylistener	21:56:01.3...	/reply, /...	/home/...
#92	[!] I heard: [Reply [hello world 92]]	Warn	/mytalker	21:56:01.3...	/chatter, /...	/home/...
#91	[i] hello world 93	Info	/mytalker	21:56:01.3...	/chatter, /...	/home/...
#90	[-] I reply: [hello world 92]	Error	/mylistener	21:56:00.3...	/reply, /...	/home/...
#89	[!] I heard: [Reply [hello world 91]]	Warn	/mytalker	21:56:00.3...	/chatter, /...	/home/...
#88	[i] hello world 92	Info	/mytalker	21:56:00.3...	/chatter, /...	/home/...
#87	[-] I reply: [hello world 91]	Error	/mylistener	21:55:59.3...	/reply, /...	/home/...
#86	[!] I heard: [Reply [hello world 90]]	Warn	/mytalker	21:55:59.3...	/chatter, /...	/home/...
#85	[i] hello world 91	Info	/mytalker	21:55:59.3...	/chatter, /...	/home/...
#84	[-] I reply: [hello world 90]	Error	/mylistener	21:55:58.3...	/reply, /...	/home/...
#83	[!] I heard: [Reply [hello world 89]]	Warn	/mytalker	21:55:58.3...	/chatter, /...	/home/...
#82	[i] hello world 90	Info	/mytalker	21:55:58.3...	/chatter, /...	/home/...
#81	[-] I reply: [hello world 89]	Error	/mylistener	21:55:57.3...	/reply, /...	/home/...
#80	[!] I heard: [Reply [hello world 88]]	Warn	/mytalker	21:55:57.3...	/chatter, /...	/home/...
#79	[i] hello world 89	Info	/mytalker	21:55:57.3...	/chatter, /...	/home/...
#78	[-] I reply: [hello world 88]	Error	/mylistener	21:55:56.3...	/reply, /...	/home/...
#77	[!] I heard: [Reply [hello world 87]]	Warn	/mytalker	21:55:56.3...	/chatter, /...	/home/...
#76	[i] hello world 88	Info	/mytalker	21:55:56.3...	/chatter, /...	/home/...