ABSTRACT

Camera is a device to record light scenes along a two-dimensional line orientation. Camera is used for a variety of purposes such as recording an event, monitoring a location, taking pictures, and so on. The use of cameras can make it easier for human to navigate a static object or moving object. Teleoperation robot requires a way for operator or controller to see the robot surroundings and to determine the direction of the robot that is controlled without directly seeing the robot.

Teleoperation robot that was researched uses Wi-Fi as its command transmission medium to the robot and also video streaming transmission medium for the operator laptop. The robot's main brain uses Raspberry Pi as a server for Internet Protocol (IP) camera and also to receive command from the operator's laptop. DFRobot Romeo V2.0 is used as the robot's movement control. Operator control the robot using laptop and can see the video stream through Graphical User Interface (GUI) that is made using C# programming language.

Robot will stay connected until -103 dBm Received Signal Strength Indicator (RSSI) level (25 m distance) using one access point. Robot can switch between access point but it affects the quality of video stream. Framerate and bitrate starts to drastically drop at -100 dBm (22 m distance) RSSI level. On optimal connection, the framerates were above 10 fps at -98 dBm until -53 dBm RSSI level.

Keyword: *Teleoperation*, IP Camera, Raspberry Pi