Robot controlling wirelessly through Wi-Fi technology

The project aims at designing a Robot which is controlled through PC through Wi-Fi technology. The Robot can be moved in all the four directions (front, back, left and right) through predefined keys assigned in the keyboard of PC.

The advent of new high-speed technology and the growing computer Capacity provided realistic opportunity for new robot controls and realization of new methods of control theory. This technical improvement together with the need for high performance robots created faster, more accurate and more intelligent robots using new robots control devices, new drivers and advanced control algorithms. This project describes a new economical solution of robot control systems. The presented robot arm control system can be used for different sophisticated robotic applications.

Wi-Fi (Short for **Wi**reless **Fi**delity) is a wireless technology that uses radio frequency to transmit data through the air. Wi-Fi has initial speeds of 1mbps to 2mbps. Wi-Fi transmits data in the frequency band of 2.4 GHz. It implements the concept of frequency division multiplexing technology. Range of Wi-Fi technology is 40-300 feet.

The controlling device for the robotic controlling in the project is a Microcontroller. The data sent from PC over Wi-Fi will be received by Wi-Fi module connected to Microcontroller. Microcontroller reads the data and decides the direction and operates the dc motors connected to it accordingly. The Microcontroller is programmed used embedded 'C' language.

Features:

1. Wi-Fi based user-friendly interfacing.
2. Low power consumption.

The project focuses on the fallowing advancements:

1. Wi-Fi technology.

2. Interfacing Wi-Fi module to Microcontroller.

3. DC motor working and need for motor driver.

4. Embedded C programming.

5. PCB designing.

The major building blocks of this project are:

1. Regulated Power Supply

2. Micro Controller.

3. Wi-Fi module.

4. DC Motor with driver.

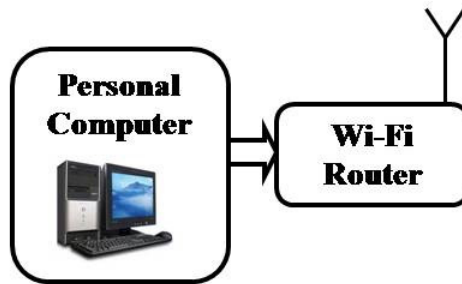5. Crystal oscillator.

6. Reset.

7. LED indicators.

Software's used:

1. PIC-C compiler for Embedded C programming.

2. PIC kit 2 programmer for dumping code into Micro controller.

3. Express SCH for Circuit design.

4. Proteus for hardware simulation.

Block diagram:

Robot Controlling wirelessly through Wi-Fi technology
1. Transmitter

Robot Controlling wirelessly through Wi-Fi technology
1. Receiver