

Reversing radar

Software design document

Authors: Kirsi Oikarinen and Maija Prové

Date: 22.05.17

Table of Contents

1. Introduction.....	2
2. Data flow diagrams.....	3
3. Component Diagram.....	4
4. Functionality.....	5
5. Possible software improvements in the future.....	6

1. Introduction

The project's goal was to make reversing radar and it was decided to use Arduino Uno R3 for this purposes. Suitable code for Arduino is possible to do by using Arduino open source software.

In this project it was needed to also use some libraries related to I2C-component. I2C is used connection between LCD and Arduino. Also Ultrasonic sensor was needed special library which was included in to code.

2. Data flow diagrams

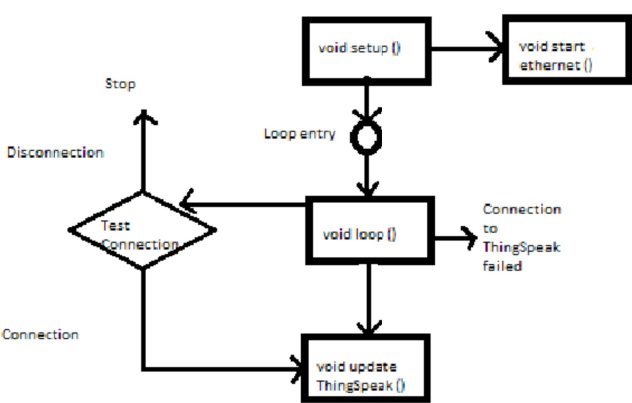


Illustration 1: Reversing Radar

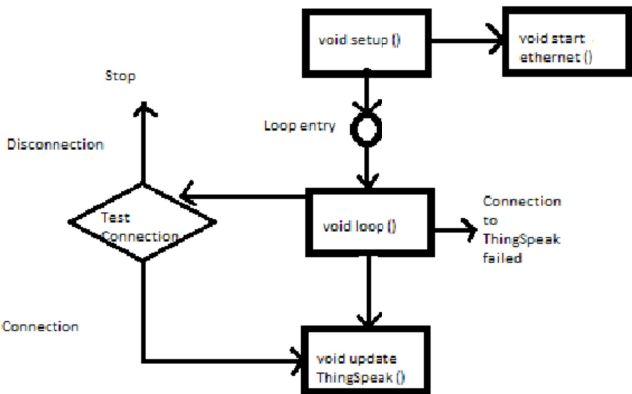


Illustration 2: Connection to ThingSpeak

3. Component Diagram

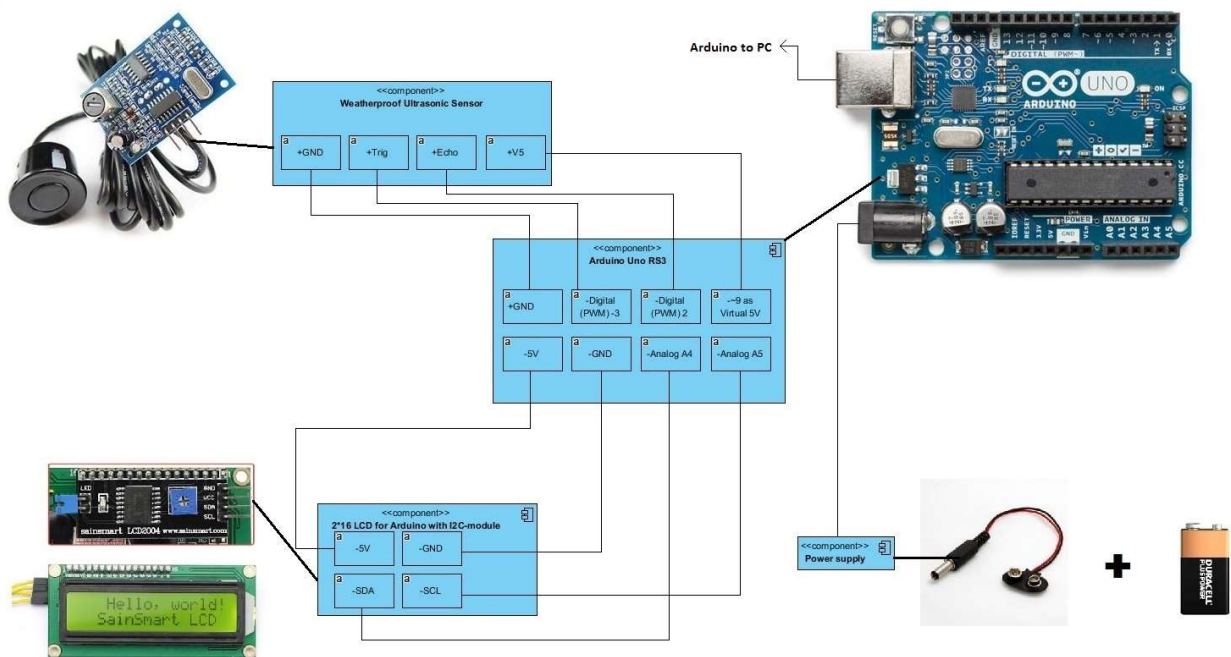


Illustration 3: Components and Used Connections

4. Functionality

Distance from possible obstacles is possible to read from LCD (16x2). At the same time when the LCD is read, ultrasonic sensor is observing environment. Ultrasonic sensor will not work properly in area under 20cm or over 200cm. So, reversing radar is usefull in area 20cm-200cm.

Main component of the reversing radar is Arduino R3 and it is possible to connect to network. In this time, it is used ThingSpeak to verify connection between Arduino and network. Connection is searched and verified by following one pin.

5. Possible software improvements in the future

In the future it would good, if error messages from "bad-area" (area under 20cm or over 200cm) would be displayed in LCD.