

The mini project

- Session June 6 team presents mini project proposal (all in LG 1.105)
- Sessions June 8/13 no lectures, but support in and around e-lab for mini project development
- Session June 15 (E lab) team presents mini project result (demo + mini poster). To be arranged with assignor

The mini project

- You are free to choose your project, but:
 - Use Arduino
 - Use at least one sensor and one actuator
 - Report on design choices (transistor, configuration, etc.)
 - Draw schematics
 - Present it as a **prototype** (user experience, packaging) !



Spaghetti in code, schematics and circuits



Code:

- Use comments `/* like this */` or `// this`
- Use functional variable names
- Use functions

Schematics:

- Draw the complete circuit (correctly!!)
(component names, values)

Circuit (soldered or breadboard)

- Should be structured
- Use color coding in wires
- Think about component placement

Otherwise:

- Debugging becomes difficult
- You lack evidence in your report

Code



```
const int Baudrate = 19200;
const int Analog_Input_Pin_A = 0; // Sensor A is connected to this pin
const int Analog_Input_Pin_B = 1; // Sensor A is connected to this pin

void setup()
{
  Serial.begin(Baudrate);          // For sending data to the computer over USB
  WriteStartCommand();
  InitialiseSensors(Analog_Input_Pin_A, Analog_Input_Pin_B);
  InitialiseTimers();
}

void loop() {
  Read_Sensors_and_Write_Data();
  if (SerialCommand()) {
    Do_Something_With_Command();
  }
}

/* Implementation of subroutines:      */
void WriteStartCommand(void) {
```

Done Saving.

Binary sketch size: 1372 bytes (of a 30720 byte maximum)

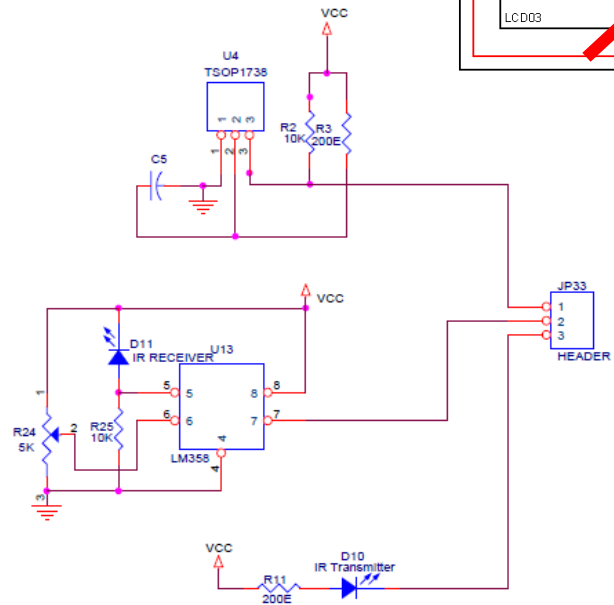
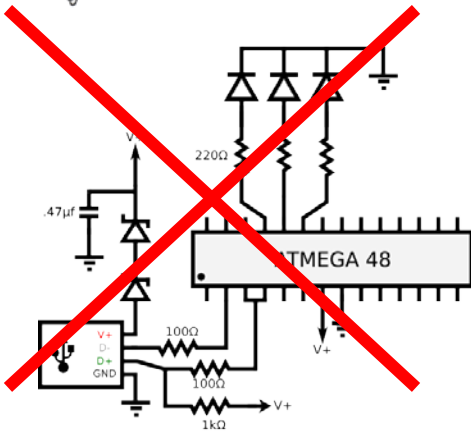
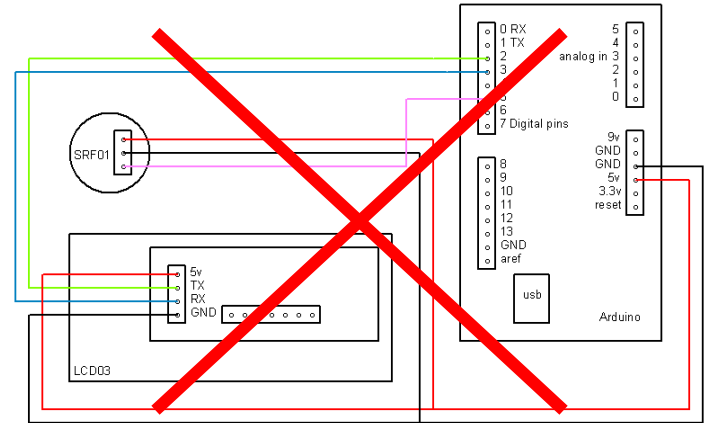
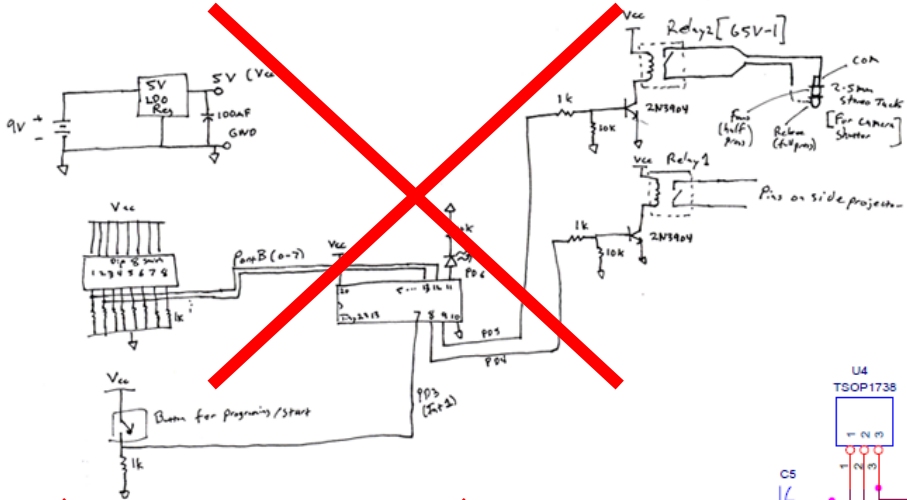
20

Code:

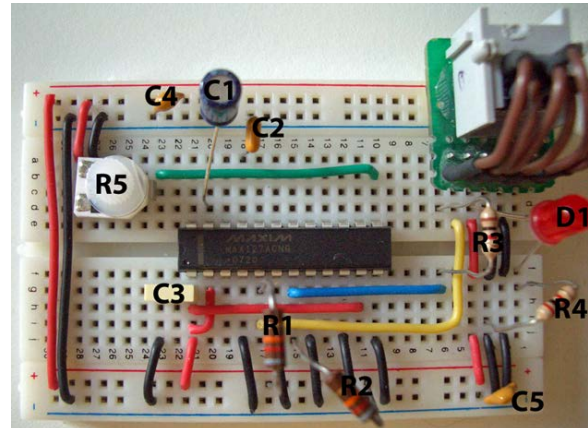
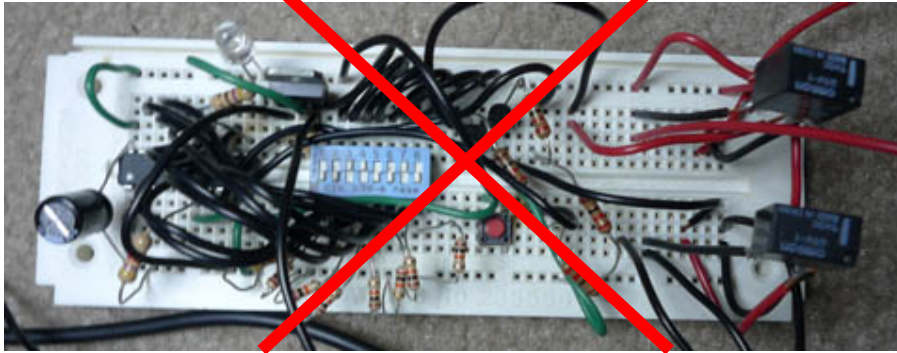
- Clear variable names
- Proper use of local and global variables
- Functions `setup()` and `loop()` are self-explaining
- Proper function names
- Comments (Header)

- Examples
 - [Bad example](#)
 - [Good example](#)

Schematics



Circuits



Resources

- Look at wiki page:
 - <http://wiki.id.tue.nl/ce/AssignmentDescription>
(and checkout the “Resources” section)
- Installation
 - <http://arduino.cc/en/Guide/Windows>
 - <http://arduino.cc/en/Guide/MacOSX>