University of Peradeniya

Self Guided Road Sign Detecting and Garbage Bin Collecting Robot

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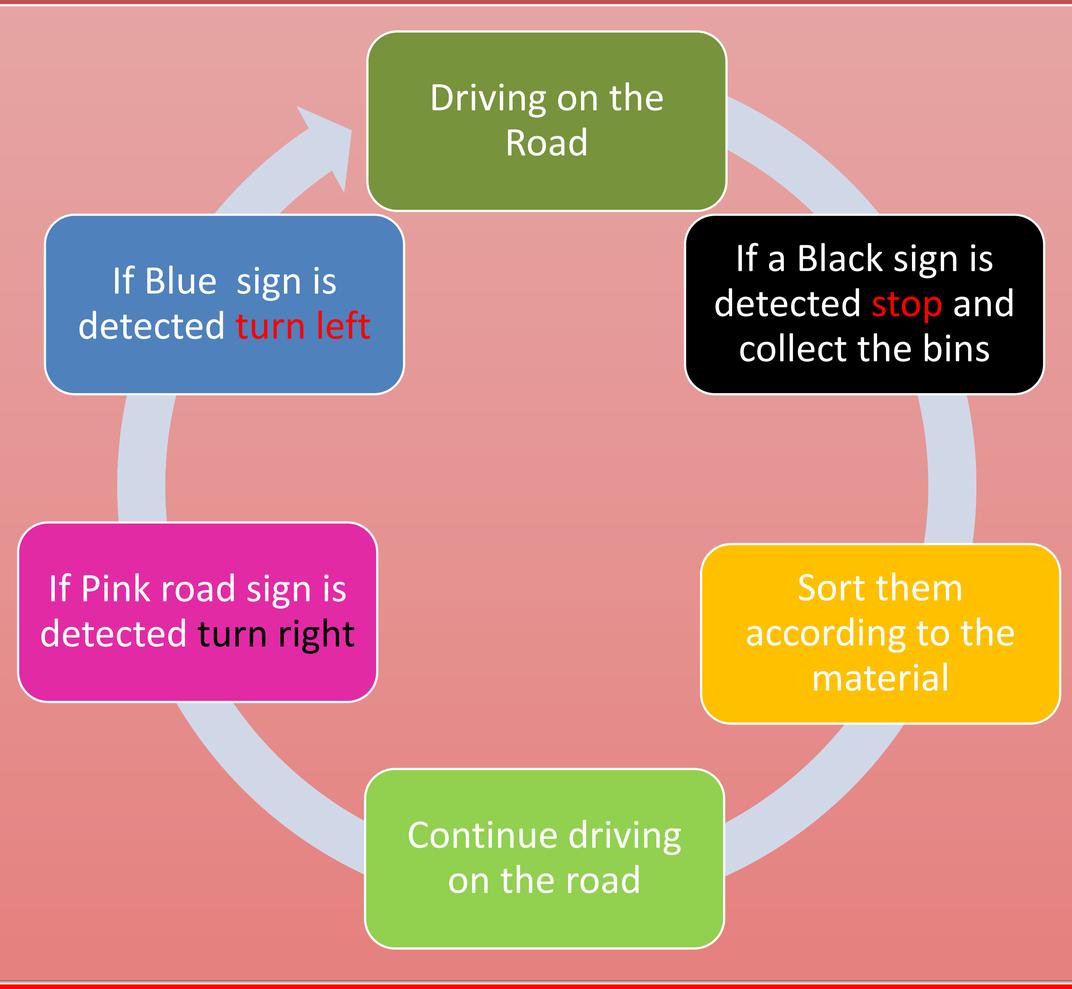
Abstract – An automated garbage collection vehicle with road sign detection (coloured) using a colour sensor is proposed. Colour signs and bins are scanned by the colour sensor and mapped according to colour specific voltage levels. Different collector bins are used to collect the recycled garbage.

Objectives

- Detect Colored Road signs to command the vehicle
- Using sensor to sort out the garbage bin
- Collect data on number of bins collected
- Use mathematical mapping methods

Methodology

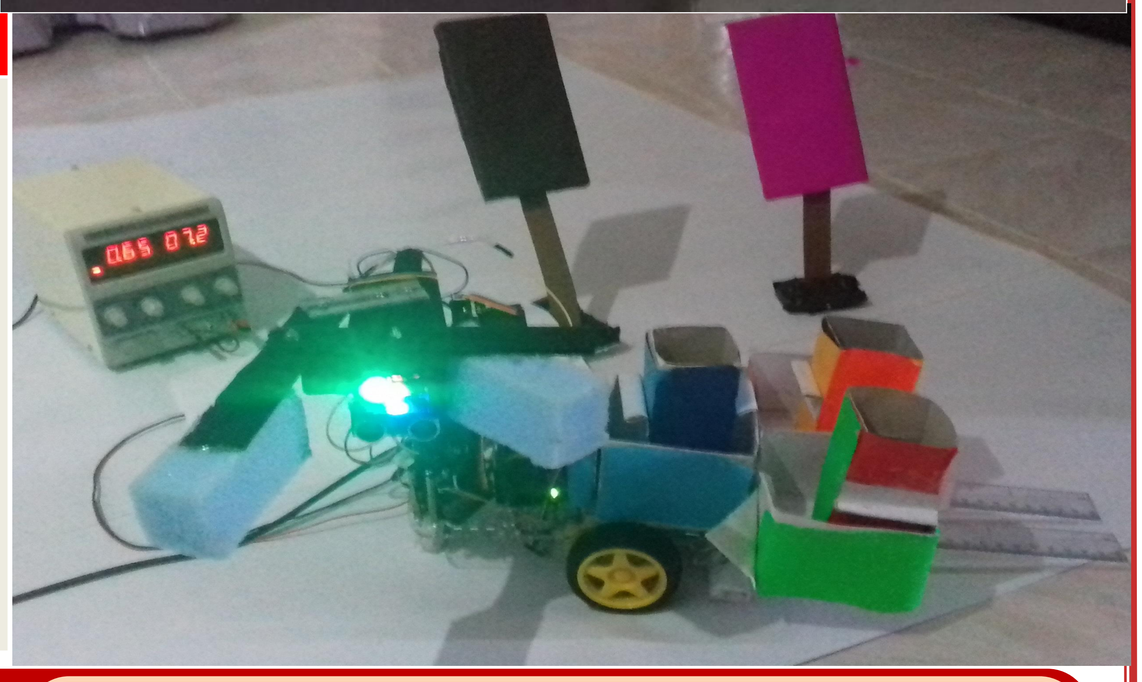


Sensor Mechanism

- A Light Dependent Resistor based(LDR) sensor is used in this design. The sensor consists of three independent chambers with task of identifying light intensity of Red, Green, Blue components of light respectively.
- Each intensity reading is fed into a microcontroller which logically determines the corresponding color according to the input data.
- Then the appropriate command is issued upon the predefined task.

Conclusions and Future work

- Sensor can be improved via a mathematical analysis method to improve the detection of colors.
- Motors can be modified such that the bins can be returned back after collection



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