

UR01

CODEZILLA

Introduction

URO 1 is a smart device capable of testing and analysing urine for different parameters like leukocytes, protein, pH, specific gravity, Ketones and glucose.



PROBLEMS FACED

Extensive testing of many urine samples at hospitals becomes tedious and is prone to human errors.

Lack of methods available to the public for accurately analysing urine samples.

Non-suitability of urine dipstick test for colour blind people as the test involves colour changes.

The inconvenience caused to patients in continually collecting samples and reporting in hospitals frequently.

Lack of facilities available to monitor urine tests from home and send them to the doctor automatically



SOLUTION



part 1

CIRCUIT DIAGRAM AND ELECTRONICS INVOLVED

part 2

MECHANISM

part 3

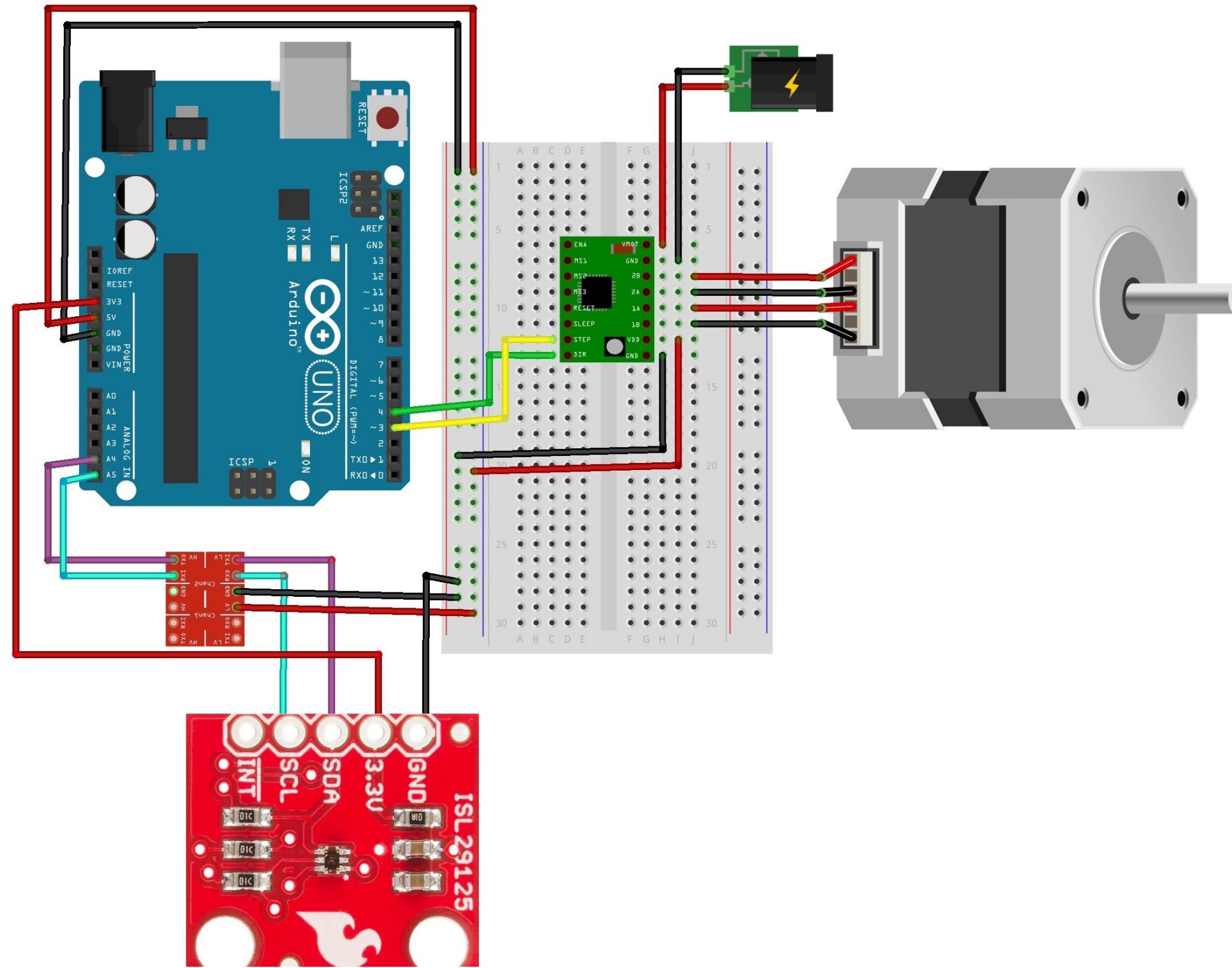
LOGIC

SOLUTION

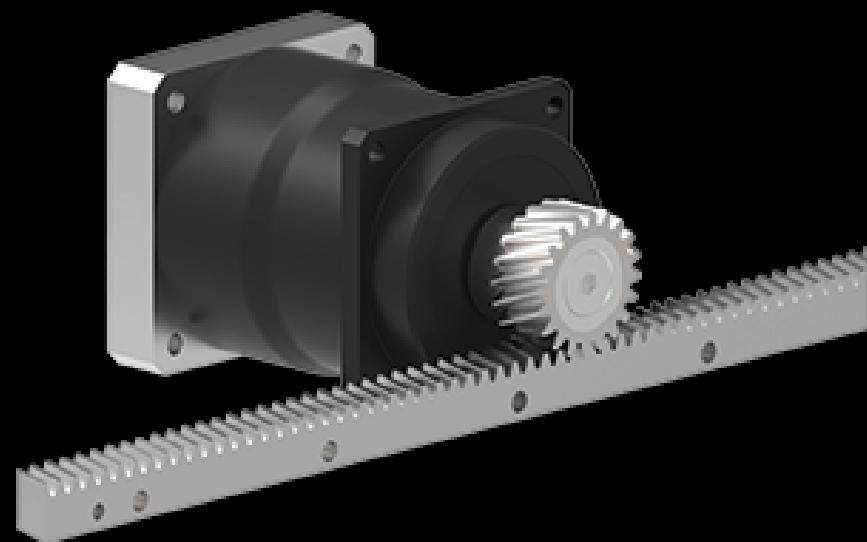
CIRCUIT DIAGRAM AND ELECTRONICS INVOLVED

- COLOUR SENSOR
- ARDUINO UNO
- MOTOR DRIVER
- STEPPER MOTOR
- LOGIC LEVEL CONVERTER

CIRCUIT DIAGRAM

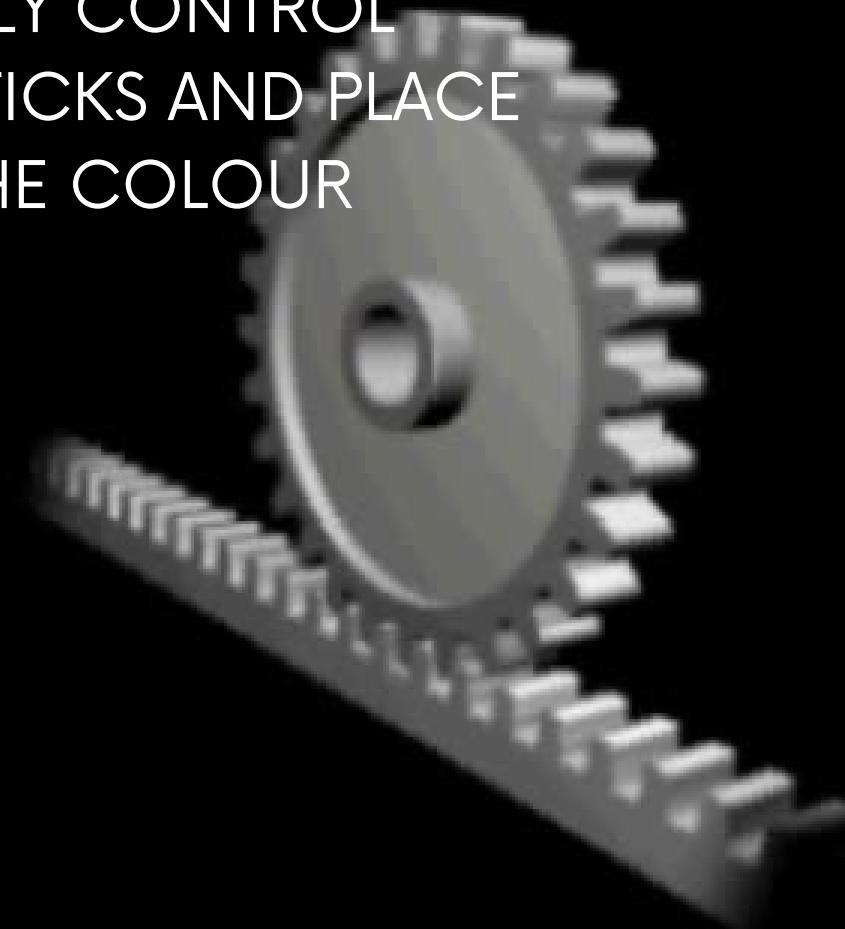
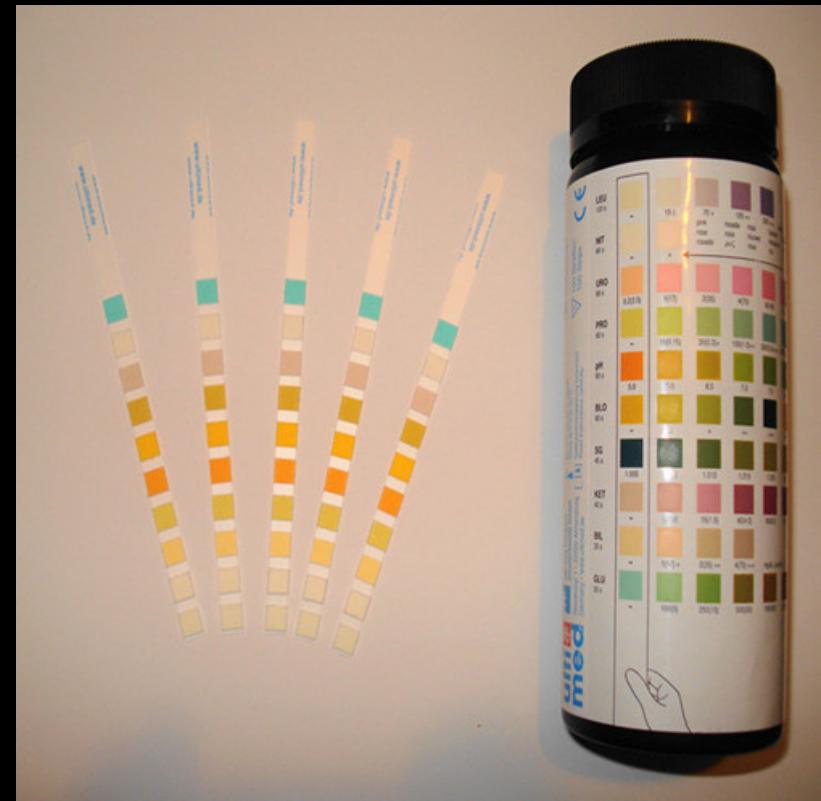


MECHANISM



RACK AND PINION METHOD

STEPPER MOTORS ARE USED TO PRECISELY CONTROL URINE DIPSTICKS AND PLACE IT UNDER THE COLOUR SENSOR.



URINE DIPSTICKS

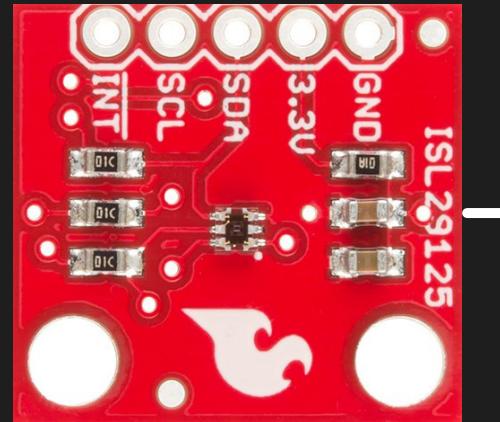
LONG STRIPS MADE OUT OF PLASTIC ON WHICH MULTIPLE CHEMICALS ARE ETCHED.

EACH CHEMICAL REACTS WITH URINE AT A DIFFERENT RATE AND GIVES A CHANGE IN COLOUR AT THE END POINT OF THE REACTION

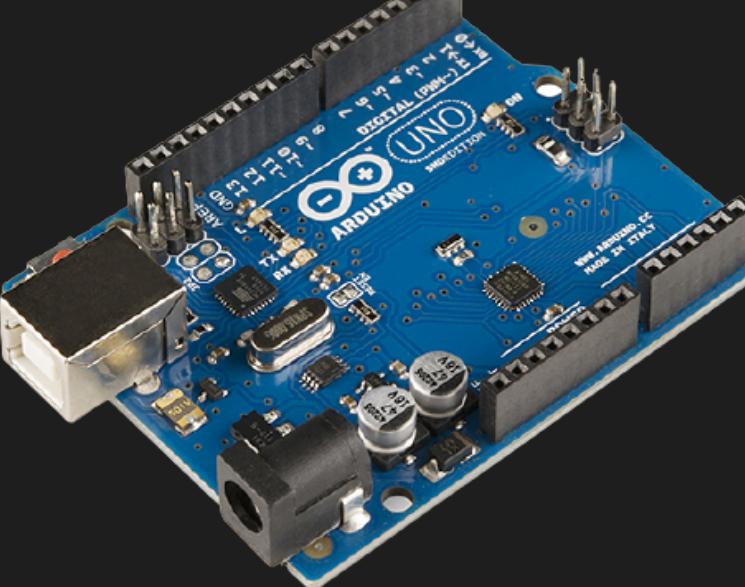
LOGIC



GSM sends the message to the registered phone numbers



the colour sensor detects colour and sends the Intensity of RGB colours received to the microcontroller



Microcontroller process the data and sends the corresponding response to the GSM module



COST

COMPONENTS PRICE

(Rupees)

ATmega328p microcontroller	150
GSM sim900a	990
ISL29125	700
Logic level converter (I2C)	70
A4988 motor driver	140
Stepper motor	600

TOTAL COST = RS 2650

APPLICATIONS

- The user can analyse his sample at home easily
- Doctors and other health care workers can track a patient's sample continually
- Placing this device in hospital rooms make it easy for doctors
- Continuous tracking of glucose level in urine
- Early detection of diseases like diabetes, kidney stone and other infections in the kidney.
- This helps a colour-blind person analyse his urine sample without the help of another person.

FURTHUR DEVELOPMENTS

- Using more powerful development boards
- Using AI to recognize colour and provide the user with the results
- Continuous tracking of glucose levels using the collected data and providing the user with the right diet.

THANK
YOU

