GROUP 7

THE EXCURSIONIST

ABSTRACT

Team Members

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Introduction

Why this project?

The Excursionist is an Arduino based picture viewer. The core idea behind this project and its feature extensibility inspires us to take it up and further innovate it. Not only does it help learn how to program an Arduino board, but also aids us in enhancing our knowledge related to frontend web development (pictures are to be displayed on the computer screen using a web based viewer)

What is the scope of this project?

The Excursionist is an attempt to make viewing holiday pictures less boring and more interactive to the people viewing it. The idea is to build a globe that allows the user to view the pictures of a country by just touching it and spinning the globe to move from one picture to another.

Components used and their purpose

Component	Purpose
Arduino MICRO Board	-
Breadboard (generic)	-
Jumper wires (generic)	-
Resistor 100k Ω	-
Resistor 330 Ω	-
Rotary Encoder Module	-
Capacitor 0.1µF	This is to debounce the rotary encoder module.
World Globe	-
Metal Pins	For capacitive sensing.

Electret Microphone Breakout	For voice recognition.
BitVoicer Server 1.0	For analyzing voice.

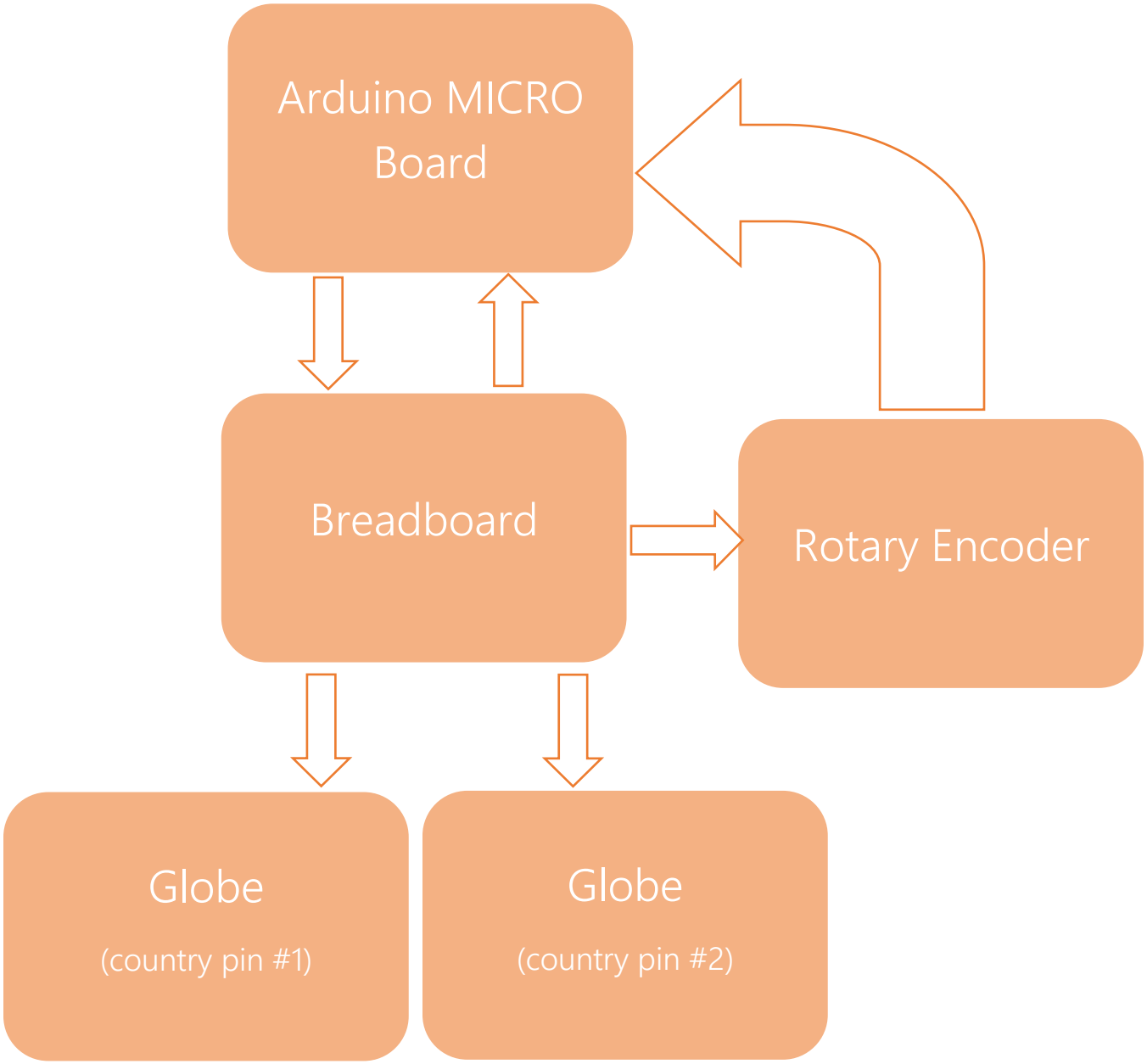
How this project is unique

This project is inspired by Caroline Buttet's "Globe Trotter".

http://carolinebuttet.ch/globe-trotter.html

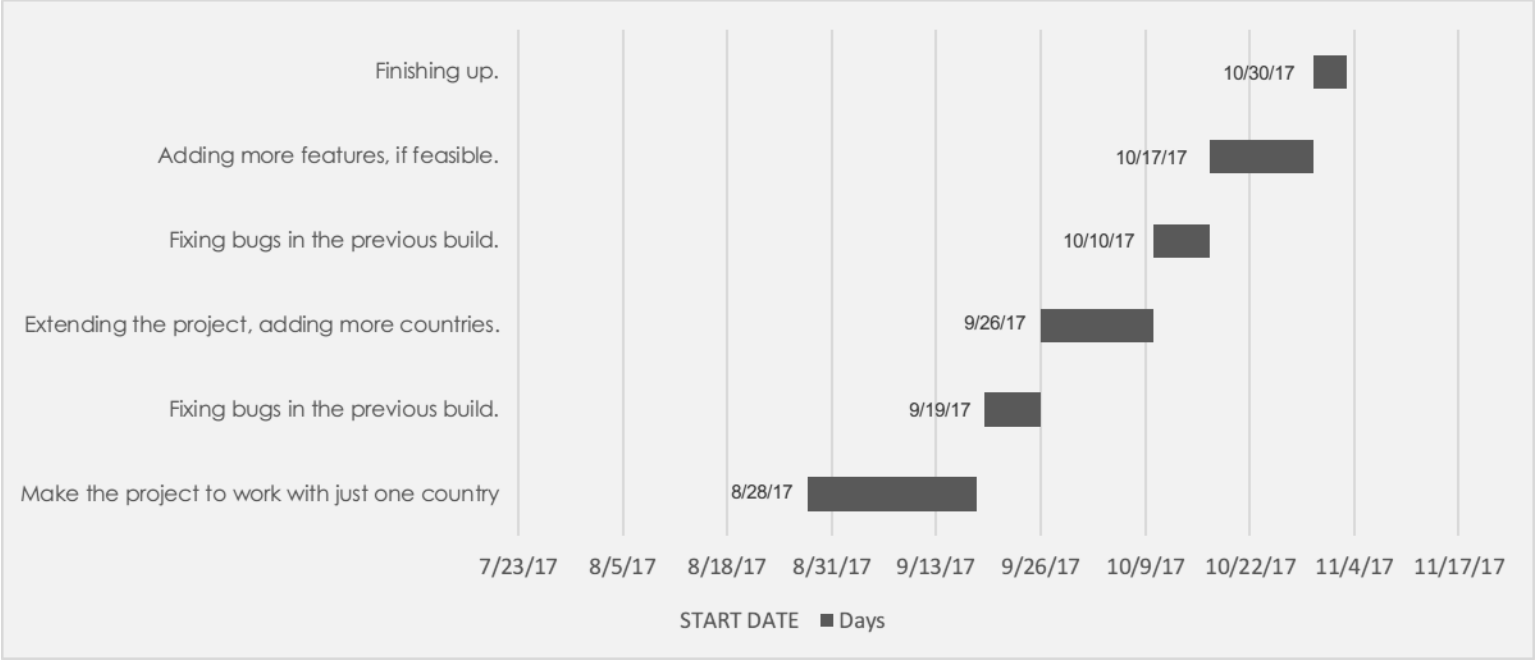
Additional features of the projects include voice recognition using Arduino, to change the country or to switch from one image to another. It also displays information related to the place on the picture to make it feel interactive.

Block Diagram



Timeline of Progress

Goal	Deadline	Extended Deadline
Make the project to work with just one country.	September 19, 2017	September 25, 2017
Fixing bugs in the previous build.	September 26, 2017	October 1, 2017
Extending the project, adding more countries.	October 10, 2017	October 14, 2017
Fixing bugs in the previous build.	October 17, 2017	October 30, 2017
Adding more features, if feasible.	October 30, 2017	November 1, 2017
Finishing up.	November 4, 2017	November 4, 2017



Tentative Budget

Component	Quantity	Cost (in Rs.)	Net Price
Arduino MICRO Board	1	1605	1605
Breadboard (generic)	2	175	350
Jumper wires (generic)	1	230	230
Resistor 100k Ω	16	100	1600
Resistor 330 Ω	5	85	425
Rotary Encoder Module	1	300	300
Capacitor 0.1µF	3	-	100
World Globe	1	600	600
Metal Pins	12	-	50
Electret Microphone Breakout	1	390	390
BitVoicer Server 1.0	1	650	650
		Total Budget	6300

Appendix

The Arduino Micro

The Micro is a microcontroller board based on the ATmega32U4. It has 20 digital input/output pins (of which 7 can be used as PWM outputs and 12 as analog inputs), a 16 MHz crystal oscillator, a micro USB connection, an ICSP header, and a reset button. It contains everything needed to support the microcontroller; simply connect it to a computer with a micro USB cable to get started. It has a form factor that enables it to be easily placed on a breadboard.

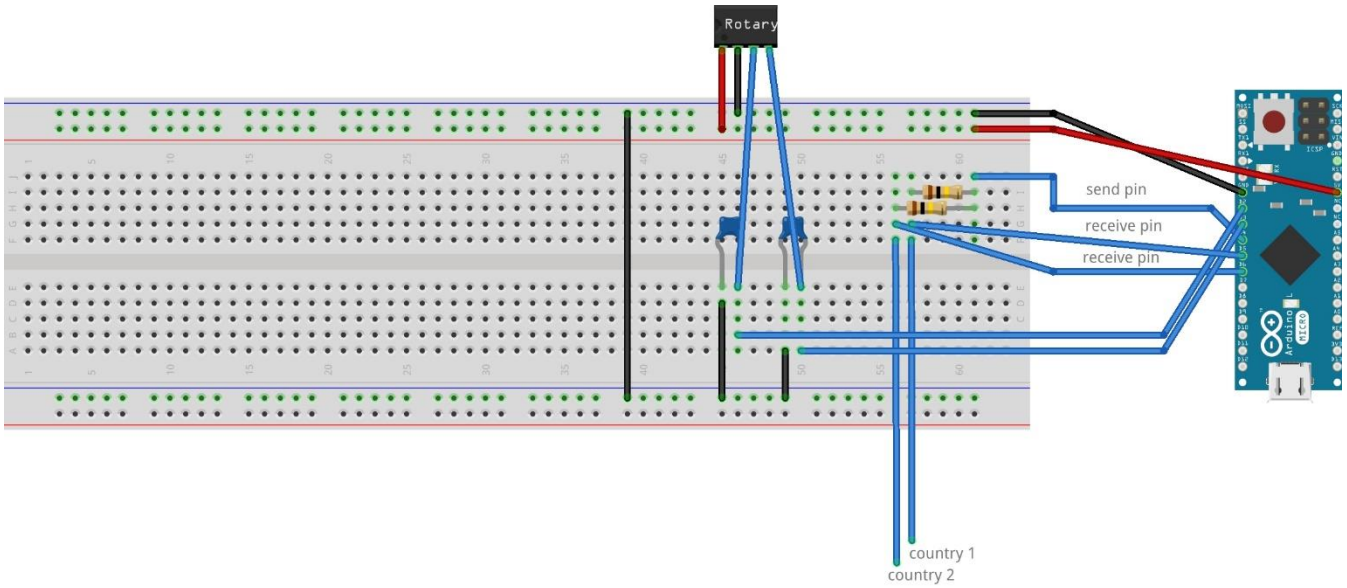
Sensor Data Specification

- Rotary Encoder

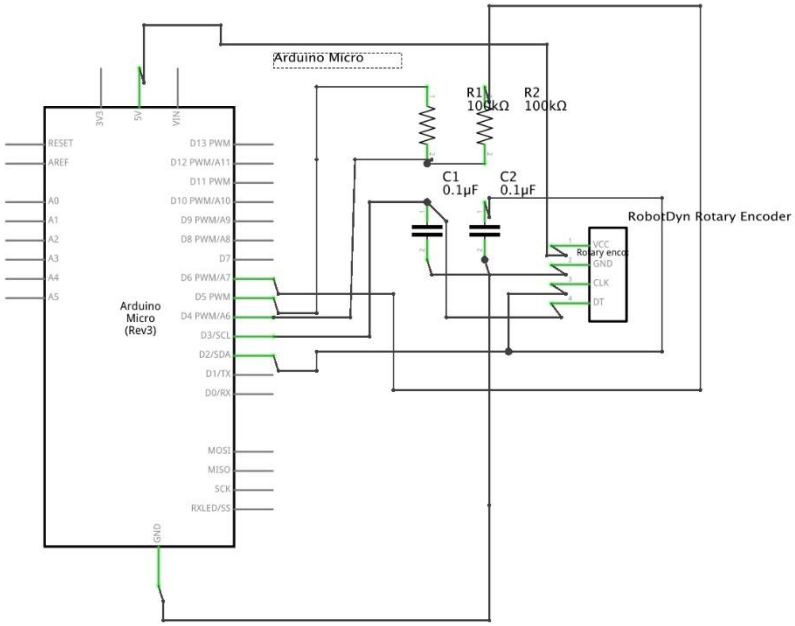
A rotary encoder is a type of position sensor which is used for determining the angular position of a rotating shaft. It generates an electrical signal, either analog or digital, according to the rotational movement. There are many different types of rotary encoders which are classified by either Output Signal or Sensing Technology. The rotary encoder is an incremental rotary encoder and it's the simplest position sensor to measure rotation. This rotary encoder is also known as quadrature encoder or relative rotary encoder and its output is a series of square wave pulses.

IC Data Specifications

Breadboard View



Schematic Diagram



References

https://create.arduino.cc/projecthub/carolinebuttet/globe-trotter-5188e8

https://store.arduino.cc/usa/arduino-micro

http://carolinebuttet.ch/globe-trotter.html

https://create.arduino.cc/projecthub/msb4180/speech-recognition-with-arduino-and-bitvoicer-server-460477