Interactions with Python, Arduino and Kinect

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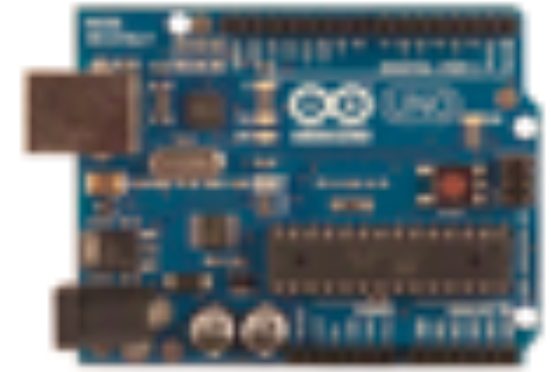github.com/pkropf/exuro

Poofer!

Hardware

Computer

Kinect

Arduino Uno Microcontroller

Servo

Solid State Relay

Asco Solenoid Valve

Push Button Switch

Neon Transformer

Spark Plug

Propane Tank

recycled stainless steel.

Bill Acceptor

Kinect

640 x 480 rgb camera for video
infrared projector
640 x 480 infrared camera for depth
4 microphones array
30 fps
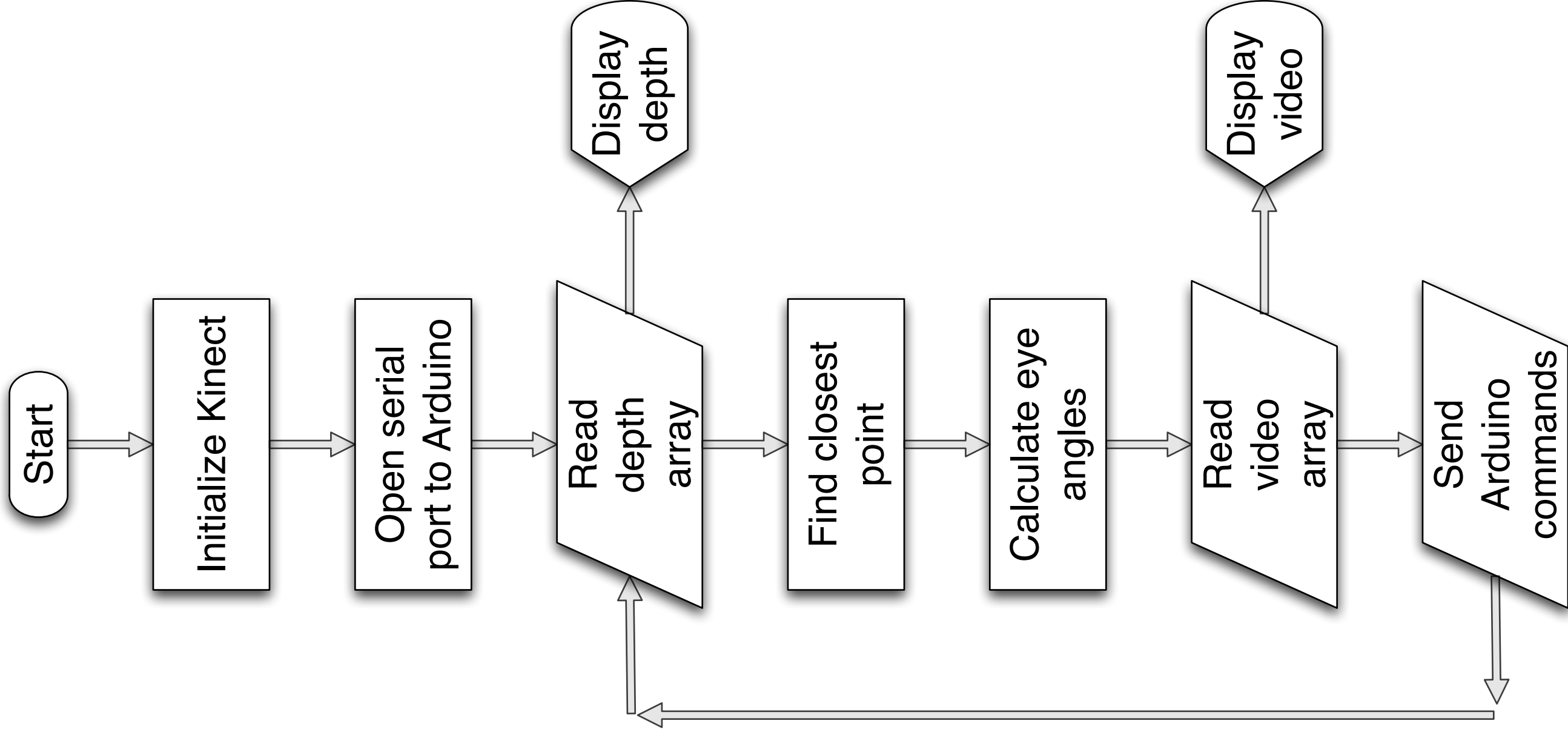57° horizontal / 43° vertical field of view

Arduino

Microcontroller	ATmega328
Operating Voltage	5V
Input Voltage	7-12V
Digital I/O Pins	14 (6 w/ PWM)
Analog Input Pins	6
DC Current / I/O Pin	40 mA
Flash Memory	32 KB
SRAM	2 KB
EEPROM	1 KB
Clock Speed	16 MHz

Software

Computer / Arduino / Kinect Interaction

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Start → Initialize Kinect → Open serial port to Arduino → Read depth array → Find closest point → Calculate eye angles → Read video array → Send Arduino commands
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Read depth array → Display depth

Read video array → Display video

Send Arduino commands → (loops back to Read depth array)

Arduino Flow

Start → Initialize Serial Port → Attach Interrupts → Serial Data?

Serial Data? — No
Serial Data? — Yes → Blink LED Command → Servo Move Command → Set Pin Command → Send Status Command → Blink Leds → Check Bill Acceptor