Security Access Control (SAC)
Multi-Factor Authentication (MFA)

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What is Multi-Factor Authentication (MFA) ?

Multi-Factor Authentication (MFA) is a method of confirming a user's claimed identity in which a computer user is granted access only after successfully presenting 2 or more pieces of evidence (or factors) to an authentication mechanism.

What is Multi-Factor Authentication (MFA) ?
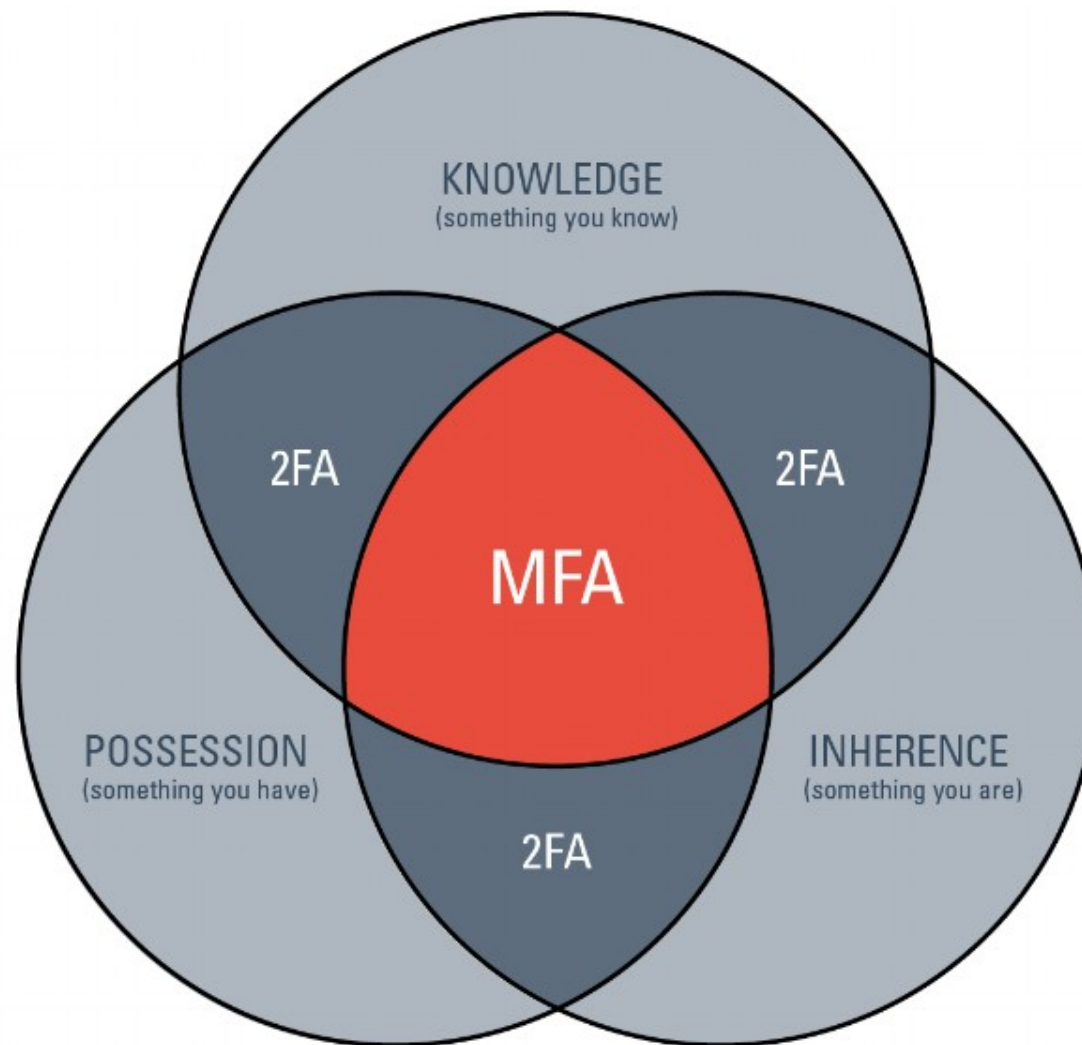
1-Factor Authentication (1FA)

Knowledge (something the user knows)

Password, Image, Pattern

2-Factor Authentication (2FA)

- Knowledge (something the user knows)

    Password, Image, Pattern

- Possession (something the user has)

    Fob that generates a pre-determined code

    Signed Digital Certificate

    Smartphone

    RFID Tag

3-Factor Authentication (3FA)

- Knowledge (something the user knows)

    Password, Image, Pattern

- Possession (something the user has)

    Fob that generates a pre-determined code

    Signed Digital Certificate

    Smartphone

    RFID Tag

- Inherence (something the user is)

    Voice, Fingerprint, Palm Veins, Face, DNA, Hand Geometry, Iris, Retina

3FA Prototype with Arduino Platform

- Something the user knows : Password

- Something the user has : RFID Tag

- Something the user is : Voice

Why Arduino Platform?

- Open Source Hardware / Open Source Software

- Cheap

- Easily available

- Easy to use

- Easy to program

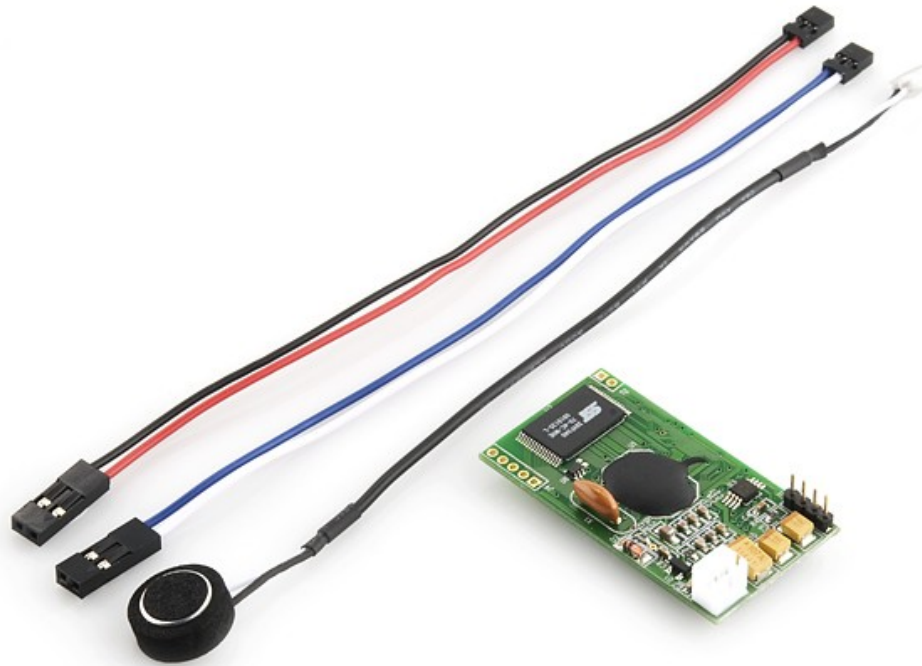- Very widespread

- Various hardware modules available

Hardware Parts

- Keypad Module (12 Button)

- VRBot Module

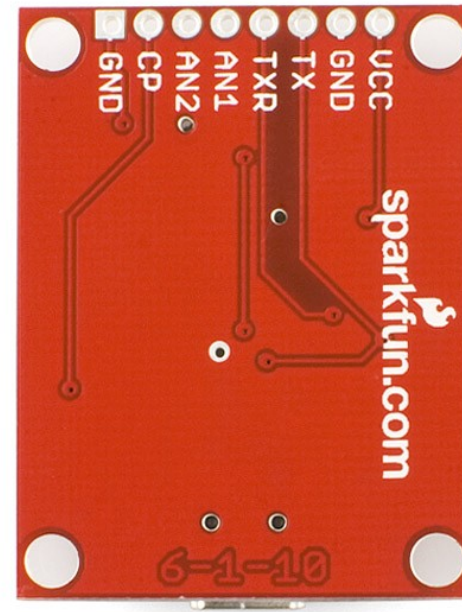- RFID USB Reader

- RFID Reader ID-12LA (125kHz)
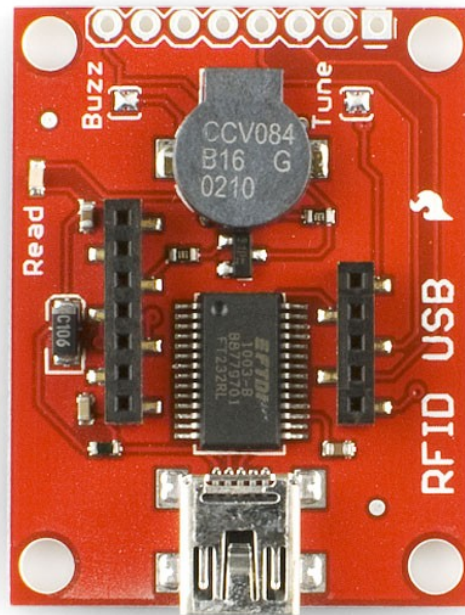
- RFID Tags (125kHz)
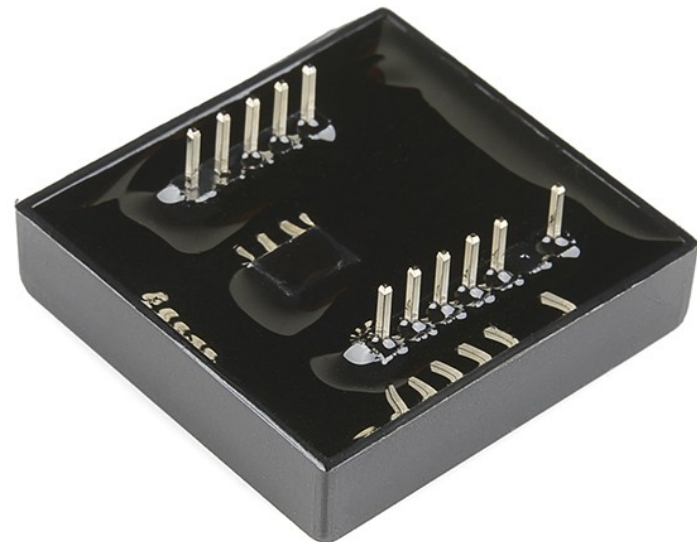
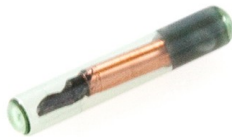# Keypad Module (12 Button)
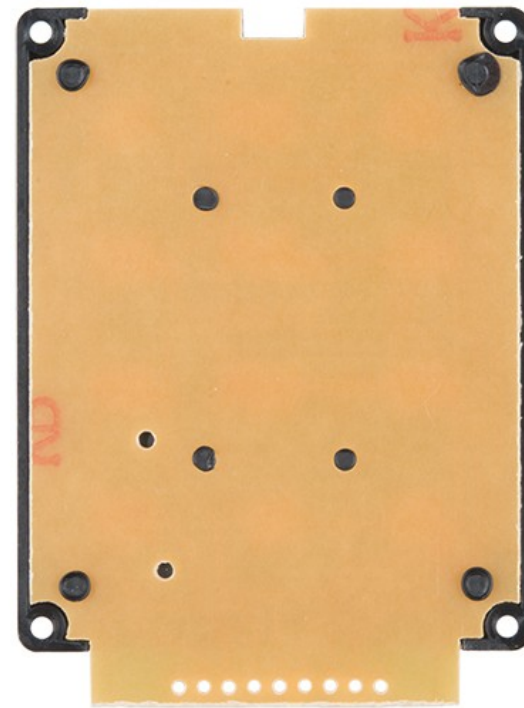
VRBot Module

RFID USB Reader

RFID Reader ID-12LA (125kHz)
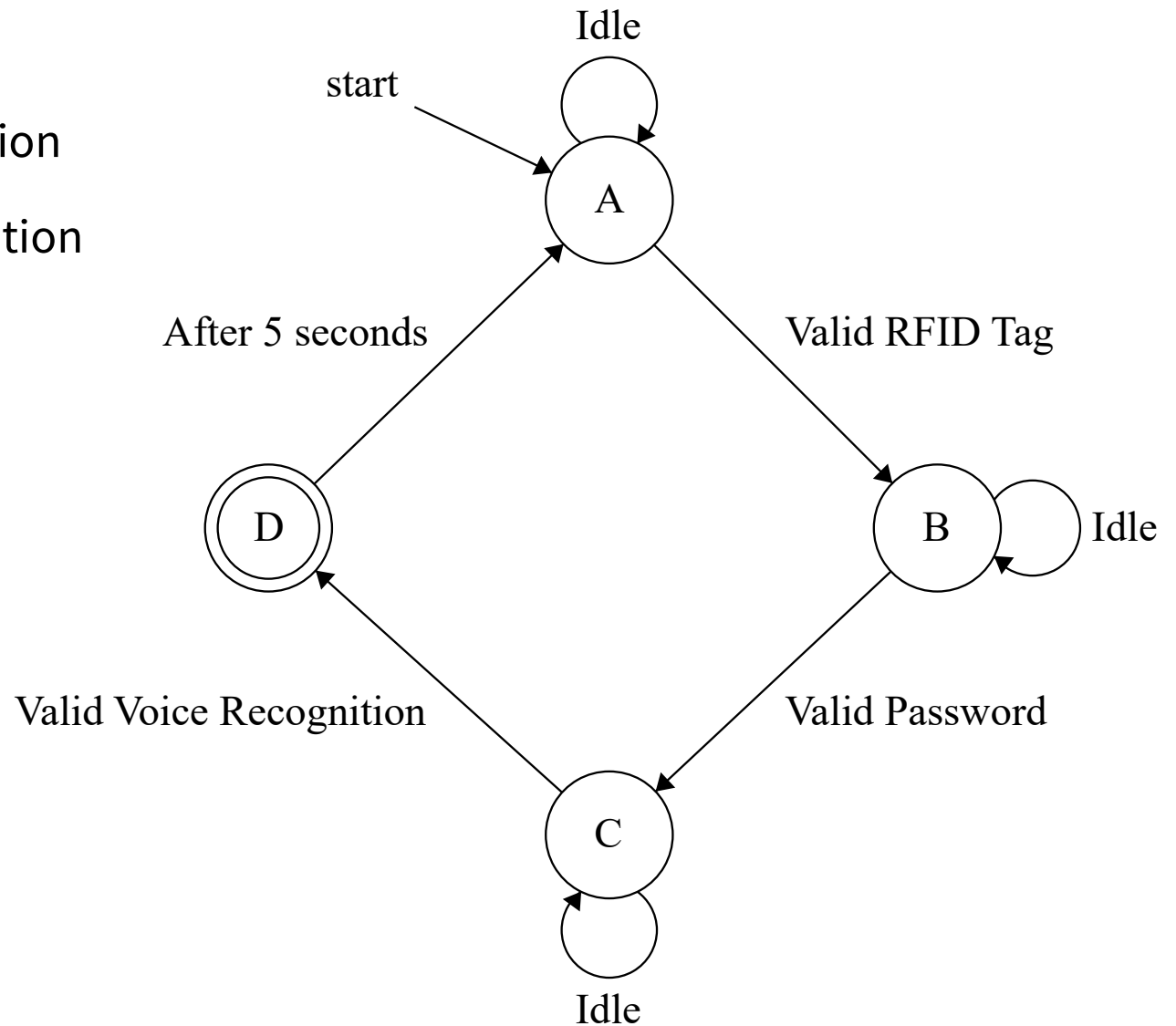
RFID Tags (125kHz)
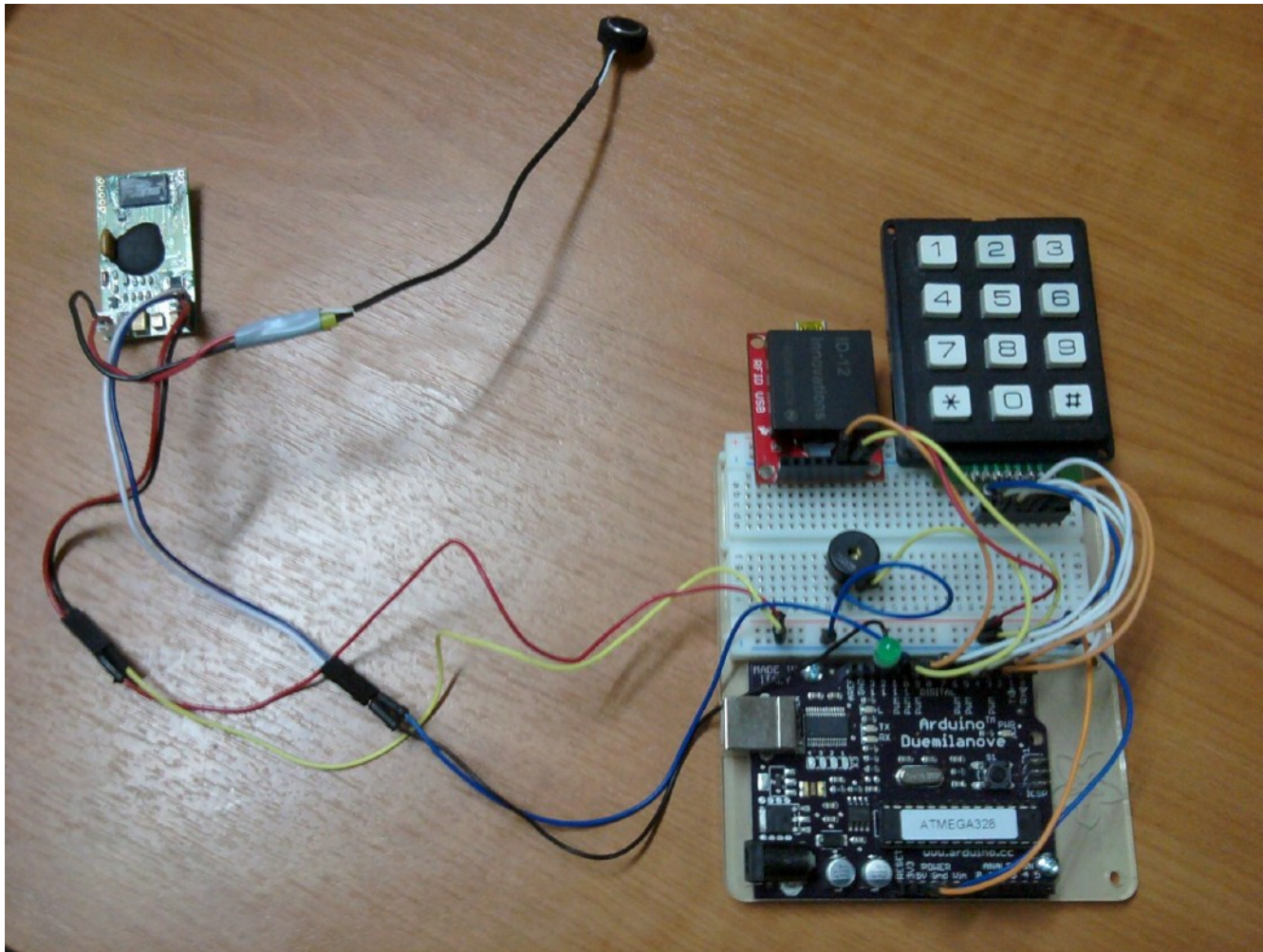
External Software Libraries

- Finite State Machine

- Software Serial

- Keypad

- VRBot Module Communication Protocol

- Musical Notes Pitches

Finite State Machine

- A - RFID Tag authentication

- B - Password authentication

- C - Voice authentication
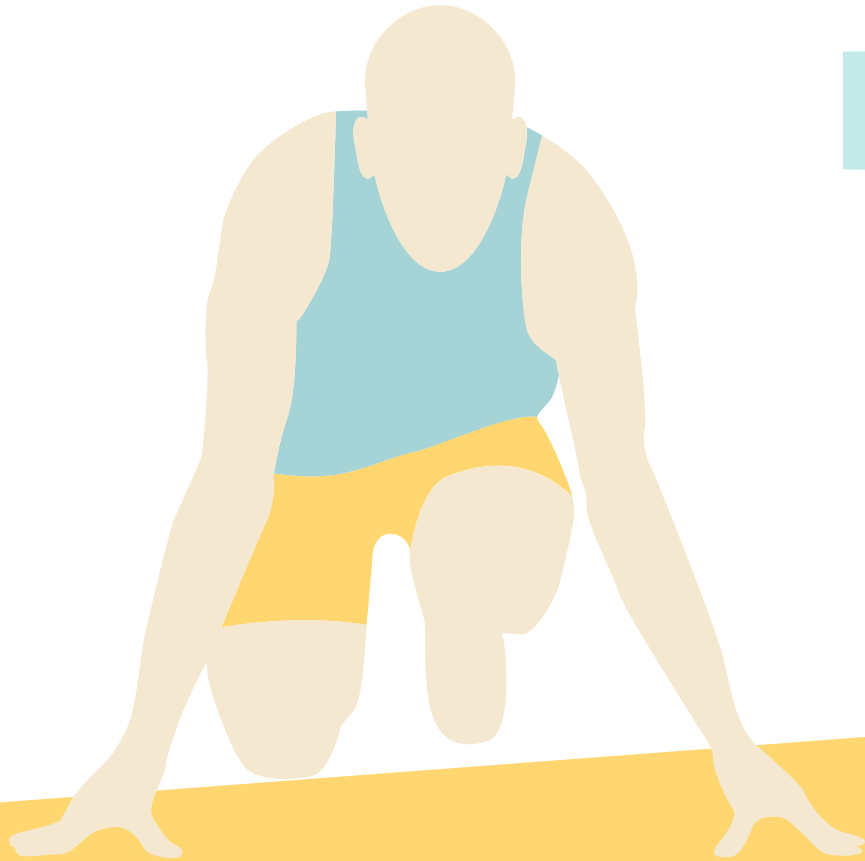
- D - Successful Access

Prototype Photograph

Resources

- http://www.arduino.cc

- http://www.sparkfun.com

- http://www.veear.eu

- http://www.id-innovations.com

- http://en.wikipedia.org/wiki/Multi-factor_authentication

- http://efxa.org/arduino_security_control_multi_factor_authentication

Every accomplishment starts with the decision to try - Gail Devers