Listing 2: Arduino Sketch

```
#define led1 13
#define button1 6
#define button2 7
const int NUMBER_OF_FIELDS = 3; // how many comma separated fields we expect
int fieldIndex = 0;            // the current field being received
int values[NUMBER_OF_FIELDS];   // array holding values for all the fields

void setup()
{
  // Initialize serial port to same speed as set in e-prime
  Serial.begin(128000);
  pinMode(led1, OUTPUT);
  pinMode(button1, INPUT);
  pinMode(button2, INPUT);
}

void loop()
{
  readTrial();
}

void readTrial()
{
  if( Serial.available())
  {
    char ch = Serial.read();
    if(ch >= '0' && ch <= '9') // is this an ascii digit between 0 and 9?
    {
      // yes, accumulate the value
      values[fieldIndex] = (values[fieldIndex] * 10) + (ch - '0');
    }
    else if (ch == ',')  // comma is our separator
    {
      if(fieldIndex < NUMBER_OF_FIELDS-1)
        fieldIndex++;   // increment field index
    }
    else
    {
      // any character not a digit or comma ends the acquisition of fields
      runTrial(values[0], values[1], values[2]);
      //clear values again; otherwise they multiply up
      for (int i=0; i <= fieldIndex; i++)
      {
        values[i] = 0;
      }
      fieldIndex = 0;  // ready to start over
    }
  }
}

void runTrial(int trialNr, int trialDuration, int trialMessage)
{
  //uncomment following line to see board LED go on during trial
  //digitalWrite(led1, HIGH);

  unsigned long starttime = micros();
  unsigned long endtime = starttime + (unsigned long) trialDuration * 1000;
  unsigned long nowtime;
  int button1State = 0;
  int button2State = 0;

  do
  {
    button1State = digitalRead(button1);
```

```
    button2State = digitalRead(button2);
    nowtime = micros();
  } while (button1State == 0 && button2State == 0 && nowtime < endtime);

  //uncomment if you turned it on above
  //digitalWrite(led1, LOW);   // set the LED off again

  unsigned long rt = nowtime - starttime;
  //constructing answer string
  String buttonStates = "0"; // no response
  if (button1State == 1) {buttonStates = "1";}
  if (button2State == 1) {buttonStates = "2";}
  if (button1State == 1 && button2State == 1) {buttonStates = "3";}

  sendBack(trialNr, rt, buttonStates);
}

void sendBack(int trialNr, unsigned long rt, String message)
{
  Serial.print(trialNr,DEC);
  Serial.print(",");
  Serial.print(rt,DEC);
  Serial.print(",");
  Serial.print(message);
  Serial.print(".");
}
```