iOS GPUImageDemo

Example of video capturing using GPUImage library

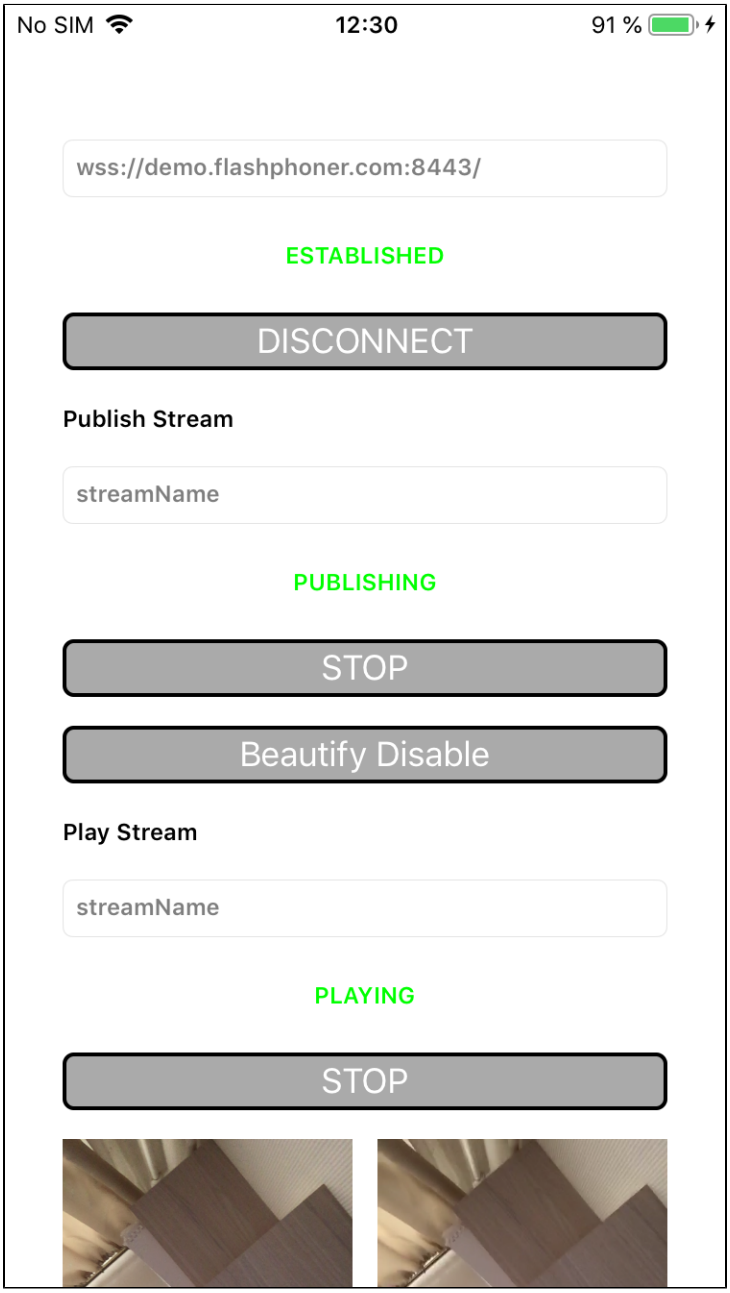
The application shows how to capture video from custom source. The source is GPUImage library with beautifying filter applied. This example works with SDK build2.6.1 and newer.

On screenshot below, video is publishing with beautifying filter applied and playing

Inputs

- 'WCS URL', wheredemo.flashphoner.com is WCS server address
- 'Publish Stream' to input stream name to publish
- 'Play Stream' to input stream name to play

Beautify Enable/Disable button enables and disables beautifying filter (the filter is enabled on screenshot)



Working with example code

To describe the code let's take GPUImageDemo application source code which is availablehere.

Main application view calss: ViewController (header fileViewController.h; implementation fileViewController.m).

1. API import

code

```
#import <FPWCSApi2/FPWCSApi2.h>
```

2. The session creation and connecting to server.

FPWCSApi2 createSession, FPWCSApi2Session connect

code

The following parameters are passed:

- URL of WCS server
- the server application key defaultApp

```
- (FPWCSApi2Session *)connect {
    FPWCSApi2SessionOptions *options = [[FPWCSApi2SessionOptions alloc] init];
    options.urlServer = _connectUrl.text;
    options.appKey = @"defaultApp";
    NSError *error;
    FPWCSApi2Session *session = [FPWCSApi2 createSession:options error:&error];
    ...
    [session connect];
    return session;
}
```

3.Preparing custom source to capture

code

The source is initialized once on first publishStream invokation

```
- (FPWCSApi2Stream *)publishStream {
    FPWCSApi2Session *session = [FPWCSApi2 getSessions][0];
    FPWCSApi2StreamOptions *options = [[FPWCSApi2StreamOptions alloc] init];
    options.name = _localStreamName.text;

    if (!self.videoCamera) {
        self.videoCamera = [[GPUImageVideoCamera alloc] initWithSessionPreset:AVCaptureSessionPreset640x480
cameraPosition:AVCaptureDevicePositionFront];
        self.videoCamera.outputImageOrientation = UIInterfaceOrientationPortrait;
        self.videoCamera.horizontallyMirrorFrontFacingCamera = YES;

        self.rawDataOutput = [[GPUImageRawDataOutput alloc] initWithImageSize:CGSizeMake(480, 640)
resultsInBGRAFormat:YES];
        self.videoCapturer = [[GPUImageVideoCapturer alloc] init];

        [self.rawDataOutput setNewFrameAvailableBlock:^{
            [_videoCapturer processNewFrame:_rawDataOutput];
        }];
        [self.videoCamera addTarget:_rawDataOutput];
        [self.videoCamera addTarget:_localDisplay];
    }
    ...
}
```

4. Stream publishing

FPWCSApi2Session createStream, FPWCSApi2Stream publish

code

The following parameters are passed to createStream method:

- stream name to publish
- local view to display
- video capture source

If publish is called successfully, video capture is started using startCameraCapture method

```
- (FPWCSApi2Stream *)publishStream {
    ...
    options.display = _localNativeDisplay;
    options.constraints = [[FPWCSApi2MediaConstraints alloc] initWithAudio:YES videoCapturer:self.
videoCapturer];

    NSError *error;
    FPWCSApi2Stream *stream = [session createStream:options error:&error];
    ...
    if(![stream publish:&error]) {
        UIAlertController * alert = [UIAlertController
                                     alertControllerWithTitle:@"Failed to publish"
                                     message:error.localizedDescription
                                     preferredStyle:UIAlertControllerStyleAlert];

        UIAlertAction* okButton = [UIAlertAction
                                   actionWithTitle:@"Ok"
                                   style:UIAlertActionStyleDefault
                                   handler:^(UIAlertAction * action) {
                                       [self onUnpublished];
                                   }];

        [alert addAction:okButton];
        [self presentViewController:alert animated:YES completion:nil];
    }

    [self.videoCamera startCameraCapture];

    return stream;
}
```

5.Enabling and disabling beautifying filter

code

```
- (void)beautify:(UIButton *)button {
    if (self.beautifyEnabled) {
        self.beautifyEnabled = NO;
        [_beautyButton setTitle:@"Beautify Enable" forState:UIControlStateNormal];
        [self.videoCamera removeAllTargets];
        [self.videoCamera addTarget:_rawDataOutput];
        [self.videoCamera addTarget:_localDisplay];
    }
    else {
        self.beautifyEnabled = YES;
        [_beautyButton setTitle:@"Beautify Disable" forState:UIControlStateNormal];
        [self.videoCamera removeAllTargets];
        GPUImageBeautifyFilter *beautifyFilter = [[GPUImageBeautifyFilter alloc] init];
        [self.videoCamera addTarget:beautifyFilter];
        [beautifyFilter addTarget:_localDisplay];
        [beautifyFilter addTarget:_rawDataOutput];
    }
}
```

6. Stream playback

FPWCSApi2Session createStream, FPWCSApi2Stream play

code

The following parameters are passed to createStream method:

- stream name to play
- view to display remote stream

```
- (FPWCSApi2Stream *)playStream {
    FPWCSApi2Session *session = [FPWCSApi2 getSessions][0];
    FPWCSApi2StreamOptions *options = [[FPWCSApi2StreamOptions alloc] init];
    options.name = _remoteStreamName.text;
    options.display = _remoteDisplay;
    NSError *error;
    FPWCSApi2Stream *stream = [session createStream:options error:nil];
    ...
    if(![stream play:&error]) {
        UIAlertController * alert = [UIAlertController
                                     alertControllerWithTitle:@"Failed to play"
                                     message:error.localizedDescription
                                     preferredStyle:UIAlertControllerStyleAlert];

        UIAlertAction* okButton = [UIAlertAction
                                   actionWithTitle:@"Ok"
                                   style:UIAlertActionStyleDefault
                                   handler:^(UIAlertAction * action) {

                                   }];

        [alert addAction:okButton];
        [self presentViewController:alert animated:YES completion:nil];
    }
    return stream;
}
```

7. Playback stopping

FPWCSApi2Stream stop

code

```
- (void)playButton:(UIButton *)button {
    [self changeViewState:button enabled:NO];
    if ([button.titleLabel.text isEqualToString:@"STOP"]) {
        if ([FPWCSApi2 getSessions].count) {
            FPWCSApi2Stream *stream;
            for (FPWCSApi2Stream *s in [[FPWCSApi2 getSessions][0] getStreams]) {
                if ([[s getName] isEqualToString:_remoteStreamName.text]) {
                    stream = s;
                    break;
                }
            }
            if (!stream) {
                NSLog(@"Stop playing, nothing to stop");
                [self onStopped];
                return;
            }
            NSError *error;
            [stream stop:&error];
        } else {
            NSLog(@"Stop playing, no session");
            [self onStopped];
        }
        ...
    }
}
```

8. Publishing stopping

FPWCSApi2Stream stop

code

```
- (void)publishButton:(UIButton *)button {
    [self changeViewState:button enabled:NO];
    if ([button.titleLabel.text isEqualToString:@"STOP"]) {
        if ([FPWCSApi2 getSessions].count) {
            FPWCSApi2Stream *stream;
            for (FPWCSApi2Stream *s in [[FPWCSApi2 getSessions][0] getStreams]) {
                if ([[s getName] isEqualToString:_localStreamName.text]) {
                    stream = s;
                    break;
                }
            }
            if (!stream) {
                NSLog(@"Stop publishing, nothing to stop");
                [self onUnpublished];
                return;
            }
            NSError *error;
            [stream stop:&error];
        } else {
            NSLog(@"Stop publishing, no session");
            [self onUnpublished];
        }
        ...
    }
}
```

9. Connection closing

FPWCSApi2Session disconnect

code

```
- (void)connectButton:(UIButton *)button {
    [self changeViewState:button enabled:NO];
    if ([button.titleLabel.text isEqualToString:@"DISCONNECT"]) {
        if ([FPWCSApi2 getSessions].count) {
            FPWCSApi2Session *session = [FPWCSApi2 getSessions][0];
            NSLog(@"Disconnect session with server %@", [session getServerUrl]);
            [session disconnect];
        } else {
            NSLog(@"Nothing to disconnect");
            [self onDisconnected];
        }
        ...
    }
}
```