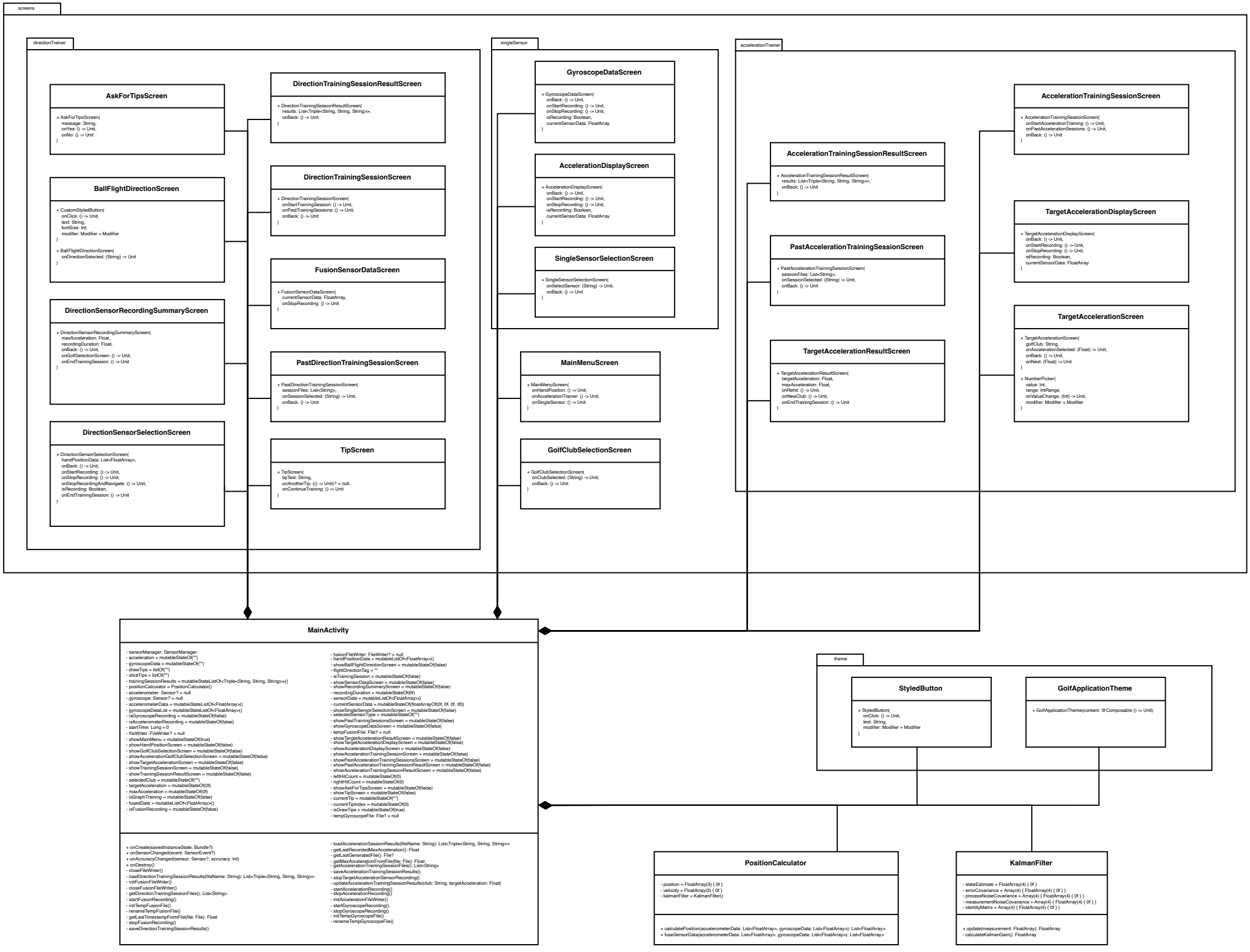
screens
directionTrainer
AskForTipsScreen
+ AskForTipsScreen(
message: String,
onYes: () -> Unit,
onNo: () -> Unit
)
BallFlightDirectionScreen
+ CustomStyledButton(
onClick: () -> Unit,
text: String,
fontSize: Int,
modifier: Modifier = Modifier
)
+ BallFlightDirectionScreen(
onDirectionSelected: (String) -> Unit
)
DirectionSensorRecordingSummaryScreen
+ DirectionSensorRecordingSummaryScreen(
maxAcceleration: Float,
recordingDuration: Float,
onBack: () -> Unit,
onGolfSelectionScreen: () -> Unit,
onEndTrainingSession: () -> Unit
)
DirectionSensorSelectionScreen
+ DirectionSensorSelectionScreen(
handPositionData: List<FloatArray>,
onBack: () -> Unit,
onStartRecording: () -> Unit,
onStopRecording: () -> Unit,
onStopRecordingAndNavigate: () -> Unit,
isRecording: Boolean,
onEndTrainingSession: () -> Unit
)
DirectionTrainingSessionResultScreen
+ DirectionTrainingSessionResultScreen(
results: List<Triple<String, String, String>>,
onBack: () -> Unit
)
DirectionTrainingSessionScreen
+ DirectionTrainingSessionScreen(
onStartTrainingSession: () -> Unit,
onPastTrainingSessions: () -> Unit,
onBack: () -> Unit
)
FusionSensorDataScreen
+ FusionSensorDataScreen(
currentSensorData: FloatArray,
onStopRecording: () -> Unit
)
PastDirectionTrainingSessionScreen
+ PastDirectionTrainingSessionScreen(
sessionFiles: List<String>,
onSessionSelected: (String) -> Unit,
onBack: () -> Unit
)
TipScreen
+ TipScreen(
tipText: String,
onAnotherTip: (() -> Unit)? = null,
onContinueTraining: () -> Unit
)
singleSensor
GyroscopeDataScreen
+ GyroscopeDataScreen(
onBack: () -> Unit,
onStartRecording: () -> Unit,
onStopRecording: () -> Unit,
isRecording: Boolean,
currentSensorData: FloatArray
)
AccelerationDisplayScreen
+ AccelerationDisplayScreen(
onBack: () -> Unit,
onStartRecording: () -> Unit,
onStopRecording: () -> Unit,
isRecording: Boolean,
currentSensorData: FloatArray
)
SingleSensorSelectionScreen
+ SingleSensorSelectionScreen(
onSelectSensor: (String) -> Unit,
onBack: () -> Unit
)
MainMenuScreen
+ MainMenuScreen(
onHandPosition: () -> Unit,
onAccelerationTrainer: () -> Unit,
onSingleSensor: () -> Unit
)
GolfClubSelectionScreen
+ GolfClubSelectionScreen(
onClubSelected: (String) -> Unit,
onBack: () -> Unit
)
accelerationTrainer
AccelerationTrainingSessionResultScreen
+ AccelerationTrainingSessionResultScreen(
results: List<Triple<String, String, String>>,
onBack: () -> Unit
)
PastAccelerationTrainingSessionScreen
+ PastAccelerationTrainingSessionScreen(
sessionFiles: List<String>,
onSessionSelected: (String) -> Unit,
onBack: () -> Unit
)
TargetAccelerationResultScreen
+ TargetAccelerationResultScreen(
targetAcceleration: Float,
maxAcceleration: Float,
onRehit: () -> Unit,
onNewClub: () -> Unit,
onEndTrainingSession: () -> Unit
)
AccelerationTrainingSessionScreen
+ AccelerationTrainingSessionScreen(
onStartAccelerationTraining: () -> Unit,
onPastAccelerationSessions: () -> Unit,
onBack: () -> Unit
)
TargetAccelerationDisplayScreen
+ TargetAccelerationDisplayScreen(
onBack: () -> Unit,
onStartRecording: () -> Unit,
onStopRecording: () -> Unit,
isRecording: Boolean,
currentSensorData: FloatArray
)
TargetAccelerationScreen
+ TargetAccelerationScreen(
golfClub: String,
onAccelerationSelected: (Float) -> Unit,
onBack: () -> Unit,
onNext: (Float) -> Unit
)
+ NumberPicker(
value: Int,
range: IntRange,
onValueChange: (Int) -> Unit,
modifier: Modifier = Modifier
)
MainActivity
- sensorManager: SensorManager
- acceleration = mutableStateOf("")
- gyroscopeData = mutableStateOf("")
- drawTips = listOf("")
- sliceTips = listOf("")
- trainingSessionResults = mutableStateListOf<Triple<String, String, String>>()
- positionCalculator = PositionCalculator()
- accelerometer: Sensor? = null
- gyroscope: Sensor? = null
- accelerometerData = mutableStateListOf<FloatArray>()
- gyroscopeDataList = mutableStateListOf<FloatArray>()
- isGyroscopeRecording = mutableStateOf(false)
- isAccelerometerRecording = mutableStateOf(false)
- startTime: Long = 0
- fileWriter: FileWriter? = null
- showMainMenu = mutableStateOf(true)
- showHandPositionScreen = mutableStateOf(false)
- showGolfClubSelectionScreen = mutableStateOf(false)
- showAccelerationGolfClubSelectionScreen = mutableStateOf(false)
- showTargetAccelerationScreen = mutableStateOf(false)
- showTrainingSessionScreen = mutableStateOf(false)
- showTrainingSessionResultScreen = mutableStateOf(false)
- selectedClub = mutableStateOf("")
- targetAcceleration = mutableStateOf(0f)
- maxAcceleration = mutableStateOf(0f)
- isGraphTraining = mutableStateOf(false)
- fusedData = mutableListOf<FloatArray>()
- isFusionRecording = mutableStateOf(false)
- fusionFileWriter: FileWriter? = null
- handPositionData = mutableListOf<FloatArray>()
- showBallFlightDirectionScreen = mutableStateOf(false)
- flightDirectionTag = ""
- isTrainingSession = mutableStateOf(false)
- showSensorDataScreen = mutableStateOf(false)
- showRecordingSummaryScreen = mutableStateOf(false)
- recordingDuration = mutableStateOf(0f)
- sensorData = mutableListOf<FloatArray>()
- currentSensorData = mutableStateOf(floatArrayOf(0f, 0f, 0f, 0f))
- showSingleSensorSelectionScreen = mutableStateOf(false)
- selectedSensorType = mutableStateOf("")
- showPastTrainingSessionsScreen = mutableStateOf(false)
- showGyroscopeDataScreen = mutableStateOf(false)
- tempFusionFile: File? = null
- showTargetAccelerationResultScreen = mutableStateOf(false)
- showTargetAccelerationDisplayScreen = mutableStateOf(false)
- showAccelerationDisplayScreen = mutableStateOf(false)
- showAccelerationTrainingSessionScreen = mutableStateOf(false)
- showPastAccelerationTrainingSessionsScreen = mutableStateOf(false)
- showPastAccelerationTrainingSessionResultScreen = mutableStateOf(false)
- showAccelerationTrainingSessionResultScreen = mutableStateOf(false)
- leftHitCount = mutableStateOf(0)
- rightHitCount = mutableStateOf(0)
- showAskForTipsScreen = mutableStateOf(false)
- showTipScreen = mutableStateOf(false)
- currentTip = mutableStateOf("")
- currentTipIndex = mutableStateOf(0)
- isDrawTips = mutableStateOf(true)
- tempGyroscopeFile: File? = null
+ onCreate(savedInstanceState: Bundle?)
+ onSensorChanged(event: SensorEvent?)
+ onAccuracyChanged(sensor: Sensor?, accuracy: Int)
+ onDestroy()
- closeFileWriter()
- loadDirectionTrainingSessionResults(fileName: String): List<Triple<String, String, String>>
- initFusionFileWriter()
- closeFusionFileWriter()
- getDirectionTrainingSessionFiles(): List<String>
- startFusionRecording()
- initTempFusionFile()
- renameTempFusionFile()
- getLastTimestampFromFile(file: File): Float
- stopFusionRecording()
- saveDirectionTrainingSessionResults()
- loadAccelerationSessionResults(fileName: String): List<Triple<String, String, String>>
- getLastRecordedMaxAcceleration(): Float
- getLastGeneratedFile(): File?
- getMaxAccelerationFromFile(file: File): Float
- getAccelerationTrainingSessionFiles(): List<String>
- saveAccelerationTrainingSessionResults()
- stopTargetAccelerationSensorRecording()
- updateAccelerationTrainingSessionResults(club: String, targetAcceleration: Float)
- startAccelerationRecording()
- stopAccelerationRecording()
- initAccelerationFileWriter()
- startGyroscopeRecording()
- stopGyroscopeRecording()
- initTempGyroscopeFile()
- renameTempGyroscopeFile()
theme
StyledButton
+ StyledButton(
onClick: () -> Unit,
text: String,
modifier: Modifier = Modifier
)
GolfApplicationTheme
+ GolfApplicationTheme(content: @Composable () -> Unit)
PositionCalculator
- position = FloatArray(3) { 0f }
- velocity = FloatArray(3) { 0f }
- kalmanFilter = KalmanFilter()
+ calculatePosition(accelerometerData: List<FloatArray>, gyroscopeData: List<FloatArray>): List<FloatArray>
+ fuseSensorData(accelerometerData: List<FloatArray>, gyroscopeData: List<FloatArray>): List<FloatArray>
KalmanFilter
- stateEstimate = FloatArray(4) { 0f }
- errorCovariance = Array(4) { FloatArray(4) { 0f } }
- processNoiseCovariance = Array(4) { FloatArray(4) { 0f } }
- measurementNoiseCovariance = Array(4) { FloatArray(4) { 0f } }
- identityMatrix = Array(4) { FloatArray(4) { 0f } }
+ update(measurement: FloatArray): FloatArray
- calculateKalmanGain(): FloatArray