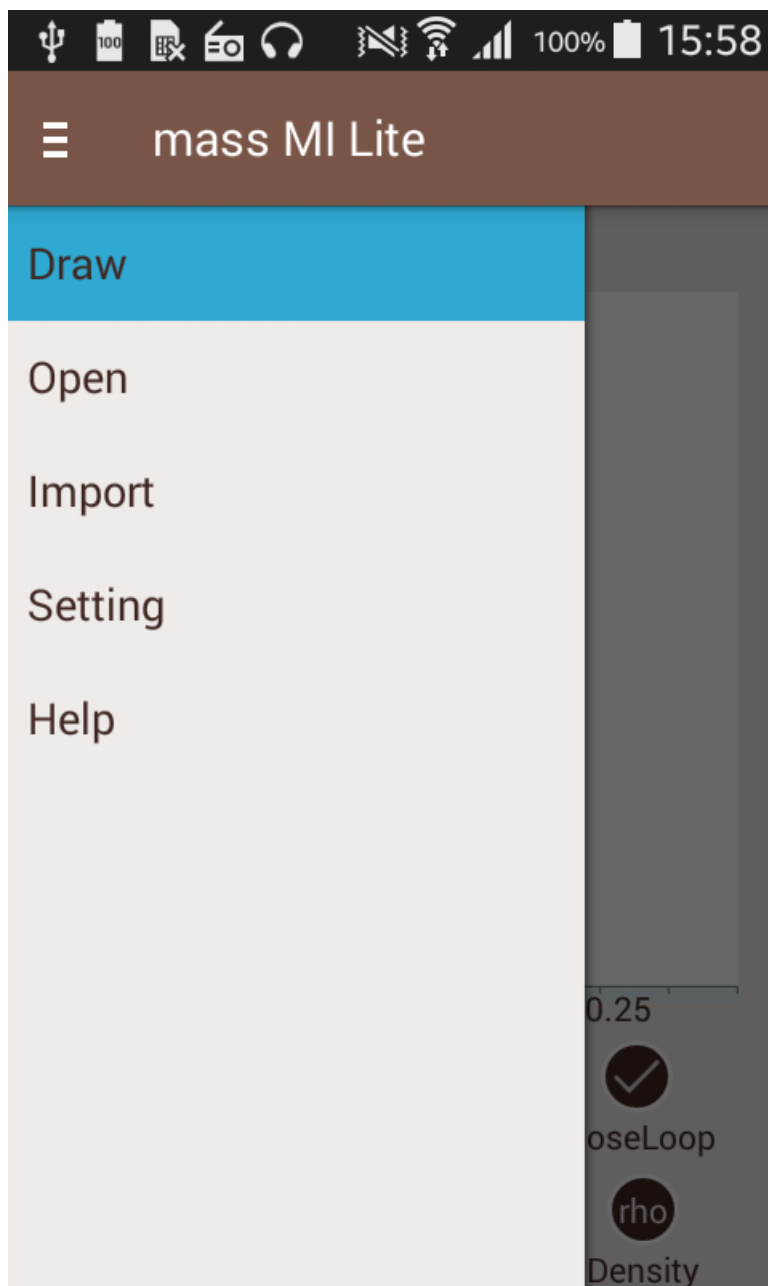


# Mass Moment of Inertia –Lite

## 1) Menu



**Draw:** The view on which we can touch the screen to draw a shape or even tap on the screen to draw. It has functionalities like Clear, Edit, Undo, Close Loop.

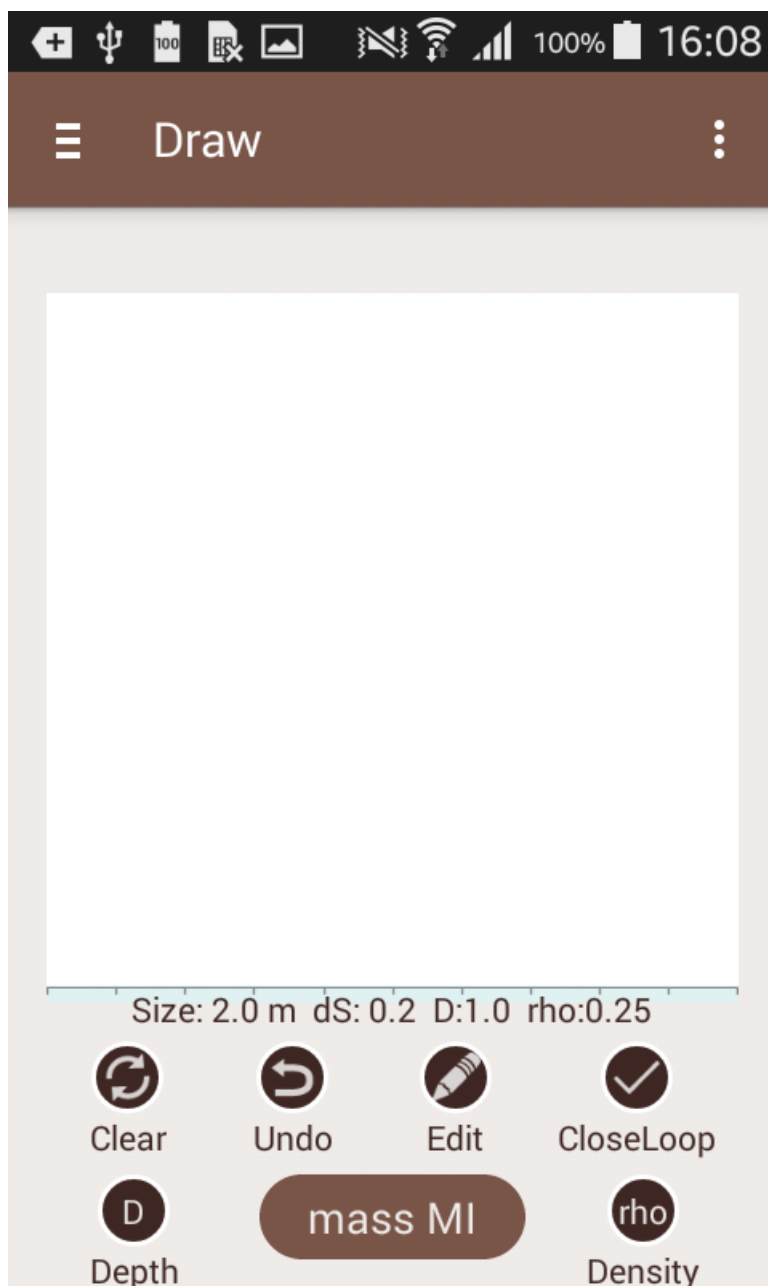
**Open:** It consist samples of geometry and the geometry which we save using save function in result view.

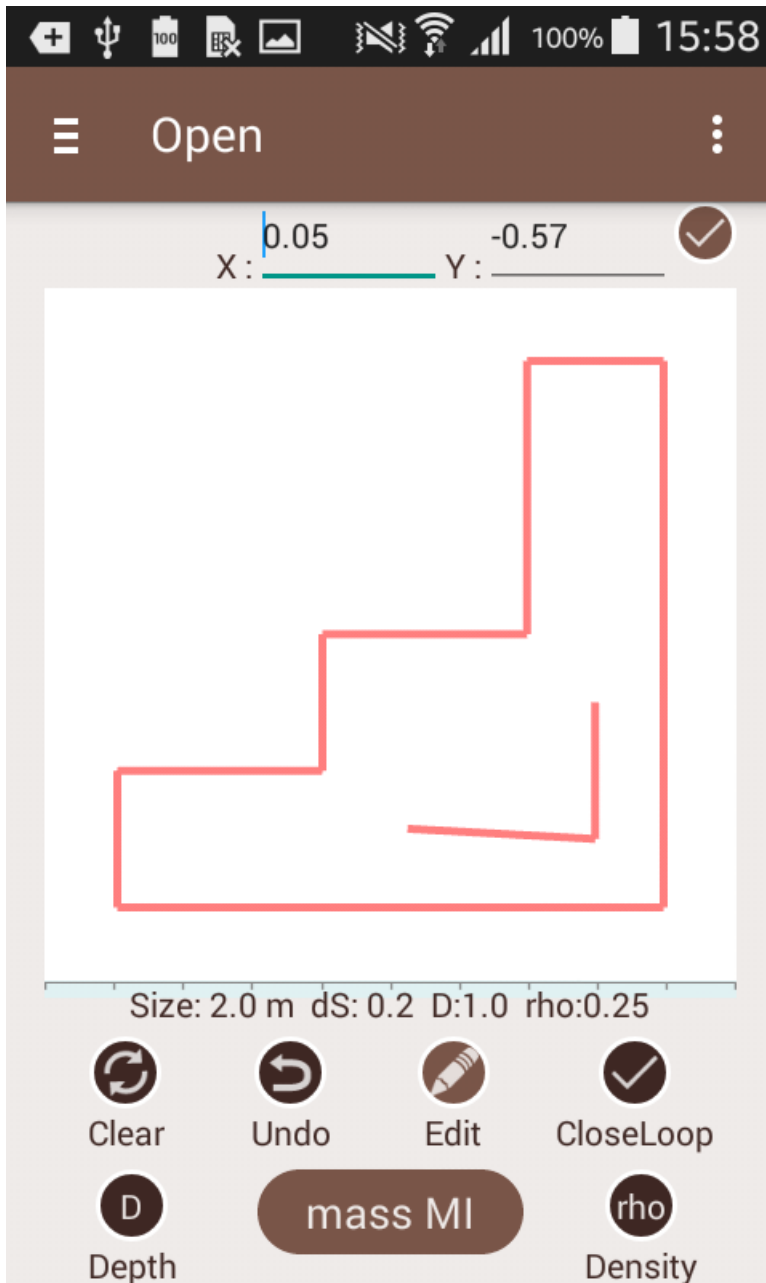
**Import:** It's functionality is to import the X & Y co-ordinate from \*.csv file. The input X & Y co-ordinate should be within a range of scale which u input before importing file.

**Settings:** It consists of all the settings used in the app, detailed features will be explained later in doc.

The number of vertices is limited to 50 and other functionalities (Save/Export/Share) are limited to 5 in this free version. The pro version will enable you do draw any shape with virtually unlimited vertices and functionalities. The Pro version is fully functional with A, Ix, Iy, Ixy Properties, XY coordinates, Holes, composite sections, save, data import/export, suggestions and share functionalities.

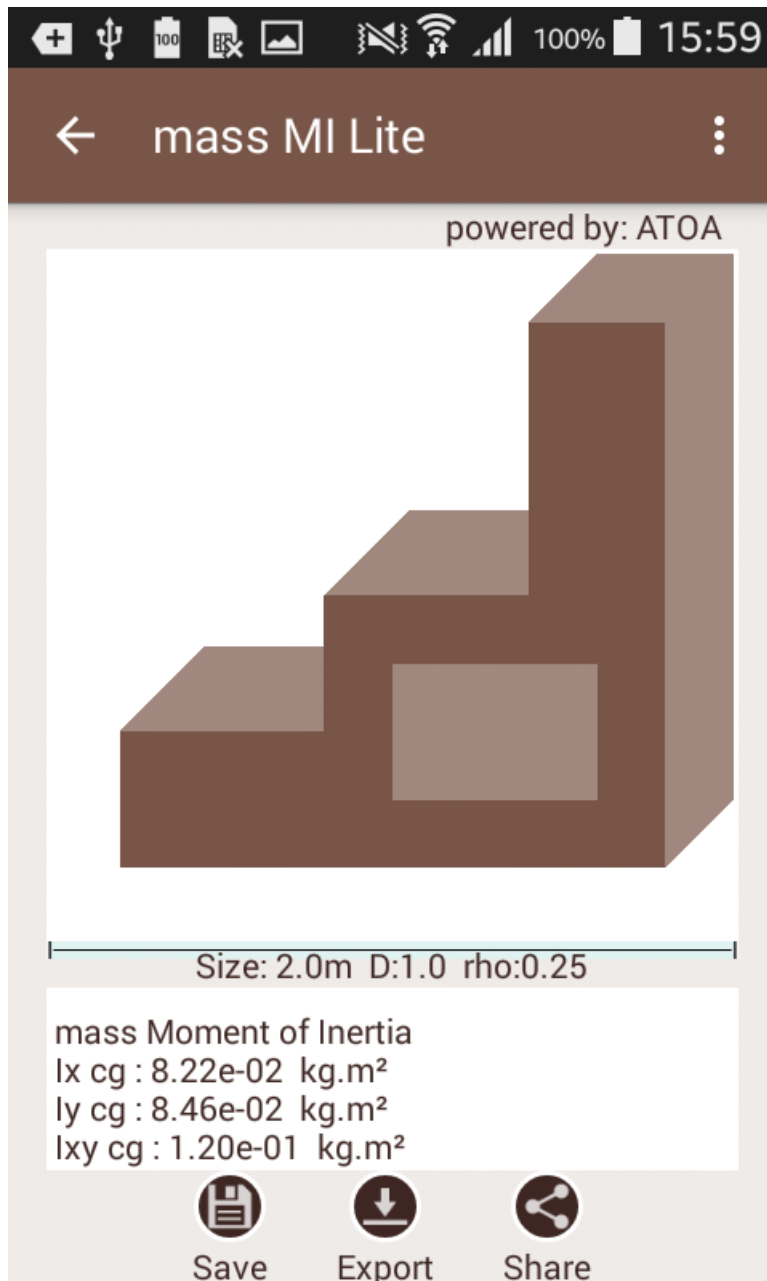
## 2) Draw





- \* Touch or Tap to draw vertex of the geometry.
- \* Draw free flow geometry by continues touch on the screen.
- \* Touch/Tap/Draw in a clockwise or counter clockwise pattern to add the vertex points of non-intersecting outer boundary of your geometry.
- \* If required, add the hole or cut inside the outer boundary, by tapping vertex points of the non-intersecting inner boundary.
- \* Tap massMI Lite to calculate the sectional properties.
- \* Use Draw: Clear, Undo, Edit, CloseLoop to manipulate your drawings.
- \* Use Edit button and then Tap a vertex point to enter X, Y coordinates.
- \* You can also touch and drag a vertex in edit mode.
- \* Use Clear, Undo, Edit and CloseLoop buttons to finalize your shape.
- \* Click Calculate MI to prediction the sectional properties.
- \* The Results page will show the final shape, Area, moment of inertia and coordinate properties.
- \* You can go back to edit the geometry if required.

### 3) Results



#### MassMI Lite Results

- \* Mass Moment of Inertia properties
- \* Mass Moment of Inertia  $I_x$  cg  $\text{kg/m}^2$ ,  $\text{lbs/in}^2$
- \* Mass Moment of Inertia  $I_y$  cg  $\text{kg/m}^2$ ,  $\text{lbs/in}^2$
- \* Mass Moment of Inertia  $I_{xy}$  cg  $\text{kg/m}^2$ ,  $\text{lbs/in}^2$
- \* Cross Sectional Area A  $\text{m}^2$ ,  $\text{in}^2$
- \* Volume  $\text{m}^3$ ,  $\text{in}^3$
- \* Mass  $\text{kg}$ ,  $\text{lbs}$

#### Geometry co-ordinate details.

- \* X.. Y..

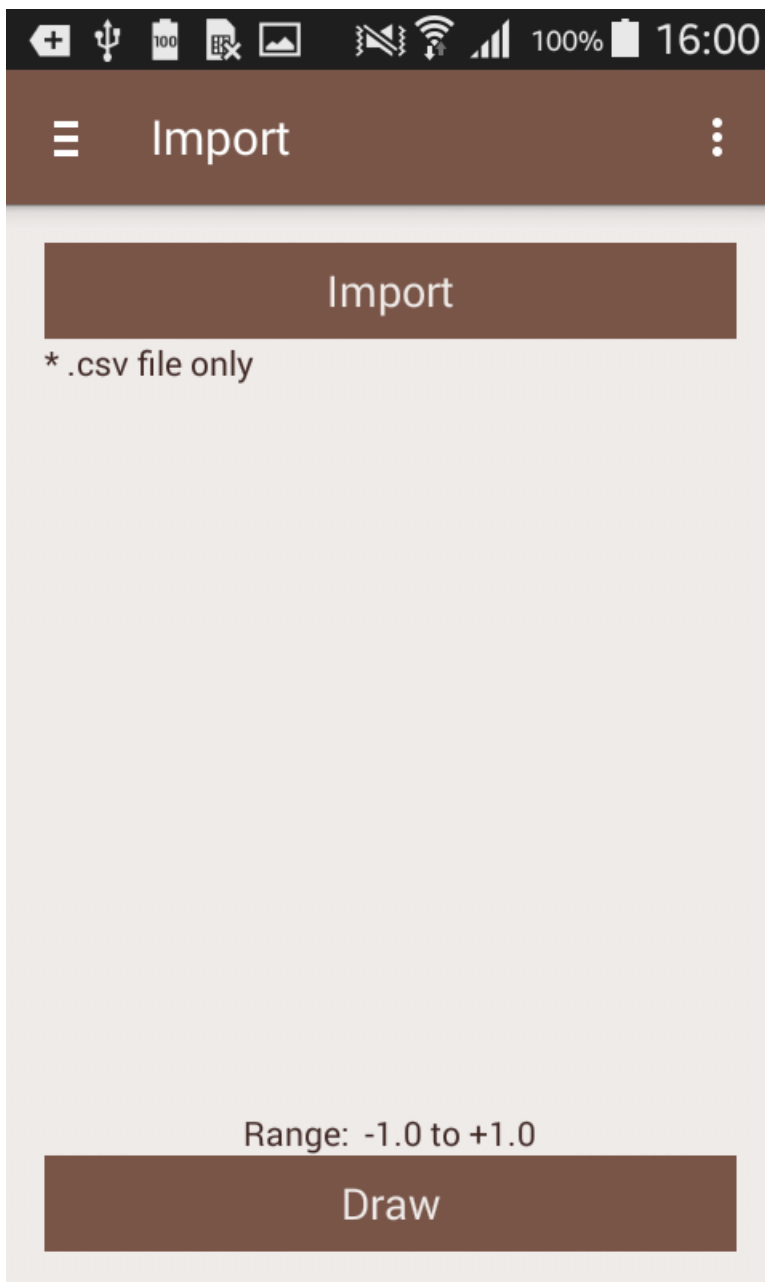
## **Functionalities:**

**Save:** It saves the geometry co-ordinate in internal database, which can be opened using Open menu.

**Export:** It exports the \*.png image of the geometry and X,Y co-ordinate in text files to the phone memory.

**Share:** The \*.png image of the geometry and X,Y co-ordinate in text files are available for share.

### 4) Import



\* You can import X Y coordinated of your geometry in \*.csv format file only.

\* Use spreadsheet editor or other tools to generate your \*.csv file.

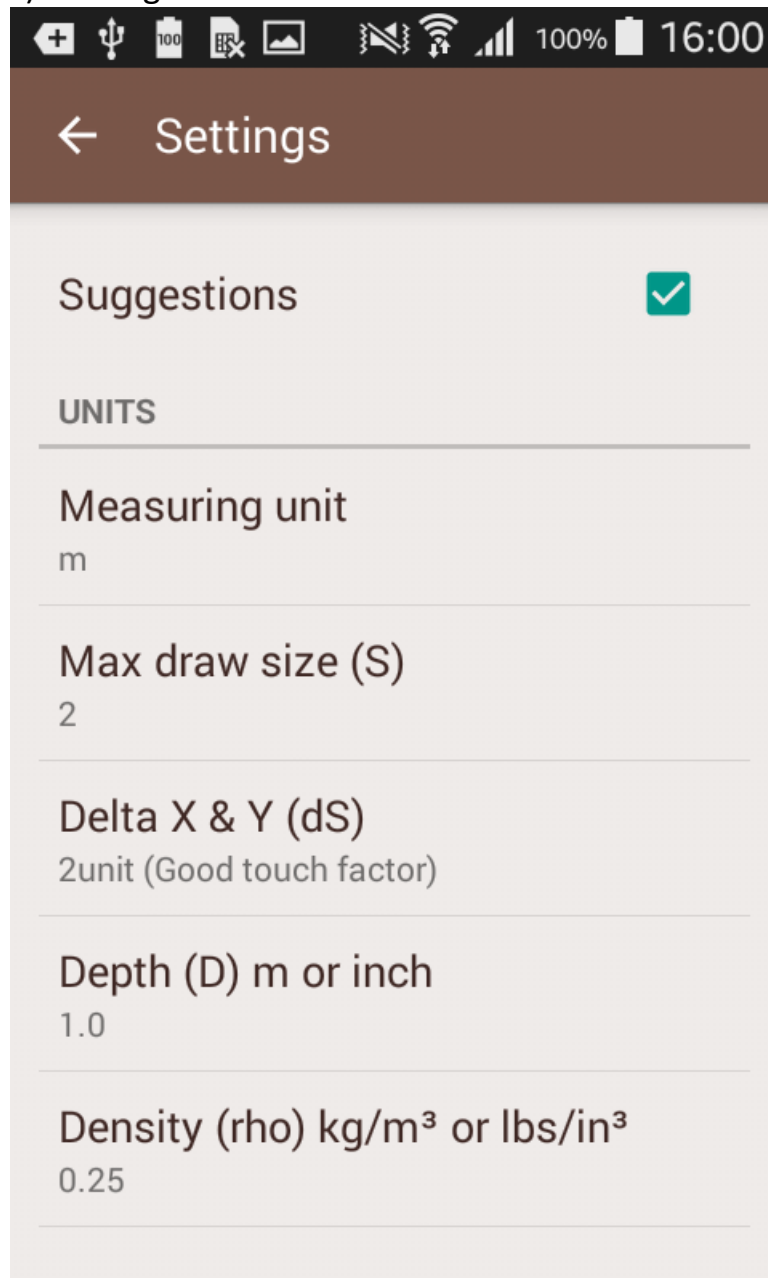
## 5) Open



\* Open the saved massMI Lite files.

\* Tap the saved files to open in draw mode.

## 6) Settings



- \* Enable settings: Check for auto suggestions/tips.
- \* Measuring Unit: Tap and select mm or inch
- \* Max Draw Size (S): Set this to any size. Set to the maximum size of your shape.
- \* Delta X and Y (dS): Set Snap size and touch factor sensitivity to edit the vertex points.

## Tips

- \* For curved geometry, use multiple straight line segments.
- \* Draw a sample shape and then edit by tapping the vertices or x, y coordinates.
- \* Max draw size is full size of the window with origin at the center.
- \* Define Clockwise or counter clockwise vertices/ boundary definition.
- \* Close the geometry before the calculations.
- \* \* Crossing of boundary is not allowed and the results should not be used.

## Note

- \* The results reported by app are valid only for non-intersecting outer and a non-intersecting inner within the outer.