1. Project number:
S19-29 (4)
2. Project title (as will appear on the poster):
Leaf area index measurement using fish-eye camera
3. Team members:
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5. Up to 5 keywords that will help to classify the project scope:
Leaf area index, Fish-eye camera, Image processing, Area measurement, Android Application
6. Project abstract (up to 250 words) to be shared with judges:
   With the further popularization of smart phone terminals, the measurement method of vegetation leaf area index is gradually changing. One of the trends is to generalize measurement from the traditional mode to simplified one based on smartphones. In this transformation, this direction of the development has received more attention.

   In our project, what we want to measure is Leaf area index (LAI), which is a dimensionless quantity that characterizes plant canopies. It is defined as the one-sided green leaf area per unit ground surface area (LAI = leaf area / ground area, m2 / m2) in broadleaf canopies. At present, there are many portable leaf area index measuring instruments produced by some companies, which can obtain the LAI by photographing the plant canopy and analyzing the acquired images on a notebook. However, these devices are expensive and the actual portability is worth further improvement. In fact, there are already some applications that use smartphones for leaf area index measurement. The goal of our project is to create a more accurate application of Android smartphones to measure LAI. So we want to introduce the fisheye lens. Firstly, we need to photograph from bottom to top to get the image. The porosity of the plant canopy was obtained based on the hemispherical method, and based on the analysis of the porosity, the leaf area index of the plant was finally obtained.